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Part X Conservation Element

San Diego County General Plan

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JANUARY 1976

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Acknowledgements

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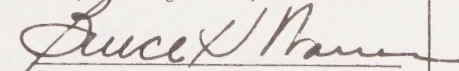
CERTIFICATES OF ADOPTION

I hereby certify that this plan is the Conservation Element of the San Diego County General Plan and that it was approved by the San Diego County Planning Commission.

5-23-75

Date


Jerry Hollingsworth, Chairman

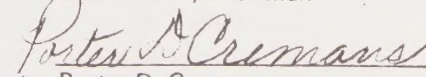

Attest: Bruce H. Warren, Secretary

I hereby certify that this plan is the Conservation Element of the San Diego County General Plan and that it was adopted by the San Diego County Board of Supervisors.

12-10-75

Date


Dick Brown, Chairman


Attest: Porter D. Cremans,
Clerk of the Board

Persons and Organizations Consulted

CITIES

CARLSBAD: City Manager and Planning Director
CHULA VISTA: City Manager and Planning Director
CORONADO: City Manager and Planning Director
DEL MAR: City Manager and Planning Director
EL CAJON: City Manager and Planning Director
ESCONDIDO: City Manager and Planning Director
IMPERIAL BEACH: City Manager and Planning Director
LA MESA: City Manager and Planning Director
NATIONAL CITY: City Manager and Planning Director
OCEANSIDE: City Manager and Planning Director
SAN DIEGO: City Manager, Planning Director, and Environmental Quality Department
SAN MARCOS: City Manager and Planning Director
VISTA: City Manager and Planning Director

OTHER COUNTY AGENCIES AND DEPARTMENTS

GENERAL ADMINISTRATION - Chief Administrative Officer, County Counsel, and Environmental Development Agency Advisory Board
FISCAL AGENCY - Assessor
HEALTH CARE AGENCY - Department of Public Health
LAW AND JUSTICE AGENCY - Sheriff
PROGRAM DEVELOPMENT AGENCY - Organizations and Programs
PUBLIC WORKS AGENCY - County Engineer and Sanitation and Flood Control
SPECIAL PUBLIC SERVICES AGENCY - Department of Agriculture, Office of Emergency Services, Office of Fire Services Coordinator, Department of Parks and Recreation, and Park Development Division

OTHER ORGANIZATIONS

American Institute of Architects, San Diego Section
American Institute of Planners, San Diego Section
American Society of Landscape Architects, San Diego Section
California Council of Civil Engineers & Land Surveyors, San Diego Section
AFL-CIO Operating Engineers, Local Union #12; Alcor Engineering; Inter-City Engineers; Norris Luedtke; Samuel Safino; and Woodward-Gizienski and Associates
California Department of Conservation, Division of Forestry
California Department of Employment Development
California Department of Fish and Game
California Regional Water Quality Control Boards: San Diego Region and Colorado River Basin Region
California Wildlife Conservation Board
Camp Pendleton Natural Resources Office
Citizens Coordinate for C-3: Olive Wehbring
Cleveland National Forest
Community Plan Executive Committee Chairmen
Comprehensive Planning Organization: Ruth Potter
Construction Industry Coordinating Council
County Fire Warden: John Morrow
Engineering-Science Incorporated: Richard Deussen
Environmental Action Council: Helen Scantlin
Fire Prevention Advisory Committee
Greater Mountain Empire Resource Conservation District
Imperial County Planning Department
James Montgomery Consulting Engineers, Inc.: Bill Moser

League of Women Voters, San Diego
 County: Mignon Bowen
 Local Agency Formation Commission
 Mountain Defense League: Byron
 Lindsay
 Natural History Museum: Joseph Jehl
 Orange County Planning Department
 Palomar Observatory: Taris Kiceniuk
 Ramona-Julian Resource Conservation
 District
 Riverside County Planning Department
 San Diegans, Inc.
 San Diego Audubon Society
 San Diego Building Contractors Associa-
 tion
 San Diego Coast Regional Commission
 San Diego Farm Bureau
 San Diego County Rock Producers Asso-
 ciation: William Walker; Dehesa
 Sand Plant, H. G. Fenton Material
 Co., Woodward Sand and Material
 Co.
 San Diego County Water Authority
 San Diego Ecology Centre
 San Diego Gas & Electric Company: Jay
 Barnett
 San Diego State University: Astronomy,
 Biology, and Geology Departments
 San Diego Taxpayers Association
 San Diego Unified Port District
 Santa Margarita-San Luis Rey Watershed
 Planning Agency: Col. Ace Bowen
 Sierra Club, San Diego Chapter
 Soil Conservation Service: Vic
 Smothers
 Solana Beach Town Council
 University of California, Scripps
 Institution of Oceanography
 Upper San Luis Rey Resource Conserva-
 tion District

WATER AND/OR SEWER DISTRICTS

Alpine Highlands Water District
 City of Escondido, Public Works
 Department
 Fallbrook Public Utility District
 Helix Water District
 Lakeside Irrigation District
 Leucadia County Water District
 Olivenhain Municipal Water
 District
 Otay Municipal Water District
 Pomerado County Water District
 Poway Municipal Water District
 Rainbow Municipal Water District
 Ramona Municipal Water District
 Rincon Del Diablo Municipal Water
 District
 Riverview Water District
 San Luis Rey Municipal Water District
 Sante Fe Irrigation District
 Santee County Water District
 Vista Irrigation District

Chapter 1

Introduction

PURPOSE

The purpose of this Conservation Element is to identify and describe the natural resources of San Diego County and prepare policies and action programs to conserve these resources. This Element does not include a map. This document is intended to fulfill the requirements of Government Code Section 65302(d), which states that each city and county must prepare:

"A conservation element for the conservation, development, and utilization of natural resources, including water and its hydraulic force, forests, soils, rivers, and other waters, harbors, fisheries, wildlife, minerals, and other natural resources. That portion of the conservation element including waters shall be developed in coordination with any countywide water agency and with all district and city agencies which have developed, served, controlled or conserved water for any purpose for the county or city for which the plan is prepared. The conservation element may also cover:

1. The reclamation of land and waters.
2. Flood control.
3. Prevention and control of the pollution of streams and other waters.
4. Regulation of the use of land in stream channels and other areas required for the accomplishment of the conservation plan.
5. Prevention, control, and correction of the erosion of soils, beaches, and shores.
6. Protection of watersheds.
7. The location, quantity and quality of the rock, sand and gravel resources."

RELATIONSHIP TO STATE LAW

The State Guidelines were used in the preparation of this Element. *See Appendix H* This Conservation Element presents each locally significant subject in a separate chapter. The following shows the relationship of the County Conservation Element to the requirements of the State Law:

<u>San Diego County Conservation Element</u>	<u>State Law Requirements</u>
Chapter 3 — Water	Water and its hydraulic force, rivers and other waters
Chapter 4 — Vegetation and Wildlife Habitat	Forests, wildlife and fisheries
Chapter 5 — Minerals	Minerals
Chapter 6 — Soil	Soil
Chapter 7 — Astronomical Dark Sky	Other natural resources
Chapter 8 — Cultural Sites	Other natural resources

Harbors are not included in this Element because none exist within the County's jurisdiction.

The Soil chapter does not deal in detail with the preservation of agricultural soil because in San Diego County there are innumerable other factors in determining suitability of an area for agriculture. This Element does, however, reiterate the proposal of the Open Space Element that an Agricultural Element be prepared. *See Soil, Policy 2 and Action Program 2.1*

As required by State law, the Water chapter was prepared in coordination with the San Diego County Water Authority, the County Department of Sanitation and Flood Control, and the County Department of Public Health. The remaining chapters of this Element were prepared in close coordination with County agencies and other government and nongovernment organizations.

EXPLANATION OF FORMAT

Each chapter of the Conservation Element consists of Findings grouped into topics followed by related Policies and Action Programs. For quick reference, the main point of each Policy is summarized on the following pages. The page number of each entire Policy and related Action Program is in parentheses.

Summary

GENERAL CONSERVATION

POLICY 1 (X-9) The San Diego County General Plan will include provisions for the conservation of natural resources.

POLICY 2 (X-10) San Diego County will observe and issue a public report on the status of natural resources.

POLICY 3 (X-10) The Environmental Development Agency will begin to establish an environmental data repository.

WATER

POLICY 1 (X-14) Regional estimates of the need for water should be based on population projections and land use derived from the General Plan.

POLICY 2 (X-14) Decisions regarding the location, size, and timing of service extensions will be in conformance with adopted growth management policies.

POLICY 3 (X-14) The County shall support programs which assure an adequate supply and quality of water to meet the present and future population needs and to insure this water is provided in concert with environmental and growth management policies.

POLICY 4 (X-14) Reduce local reliance on imported water.

POLICY 5 (X-14) Water distribution systems should be designed and constructed to economically accommodate future use of reclaimed or desalinized water when technologically and economically feasible.

POLICY 6 (X-15) Conserve groundwater resources in areas where imported water is not available.

POLICY 7 (X-18) Encourage sewage treatment agencies in the same drainage basin to jointly plan and implement wastewater treatment programs.

POLICY 8 (X-18) Wastewater discharges shall not adversely affect the beneficial uses of receiving waters.

POLICY 9 (X-18) Encourage sewage treatment agencies to research and utilize improved technologies and methods of sewage treatment and that the Health Care Agency be requested to give favorable consideration to methods other than ocean outfall and septic tanks.

POLICY 10 (X-18) Storm drain run-off should be planned and managed to minimize water degradation, to reduce the waste of fresh water, to enhance wildlife, and to reduce the impact of erosion.

POLICY 11 (X-18) The County will encourage projects which will promote the reclamation and reuse of wastewater.

POLICY 12 (X-18) The County endorses management principles from the Regional Water Quality Control Board Comprehensive Plans.

POLICY 13 (X-18) Decisions regarding the location, size, and timing of service extensions should be in conformance with adopted urban development policies contained in all elements of the General Plan and current growth policies.

POLICY 14 (X-20) Prior to the approval of tentative maps, a letter must be provided by all affected sewage treatment agencies indicating the current unencumbered capacity and existing total capacity of their major facilities.

POLICY 15 (X-20) Modify regulatory procedures to prevent surface and ground-water pollution which results from failure of subsurface sewage disposal.

POLICY 16 (X-22) Nonstructural flood protection methods will be used whenever possible for the conservation of floodplains.

POLICY 17 (X-22) Where nonstructural flood protection methods are not practical because of the value of previous urban development, concrete-lined channels will be used only if all other structural methods are infeasible.

POLICY 18 (X-22) The County will prevent filling or construction in the floodway.

POLICY 19 (X-22) Setbacks from minor streams shall be required for all new structures.

POLICY 20 (X-22) The County will retain the present policy and program of delineating floodplains and applying floodplain overlay zoning to them.

POLICY 21 (X-23) Encourage tax assessments for properties located within floodways to be commensurate with restriction of permitted uses.

POLICY 22 (X-23) The County will require flowage easements to be dedicated to the San Diego County Flood Control District at the time of development on all watercourses having a tributary drainage area of one or more square miles whenever adequate channel improvements are not provided.

POLICY 23 (X-25) The County will take those actions which will protect and enhance the San Elijo, Batiquitos, Las Pulgas, and Santa Margarita Lagoons.

POLICY 24 (X-25) Encourage adequately treated wastewater or imported water at sufficient velocity and volume to flush out the lagoons periodically to enhance lagoon rejuvenation.

POLICY 25 (X-25) The filling and dredging of tidal marshes, brackish lagoons, estuaries, and sloughs shall not be permitted except as a remedial management technique which would have beneficial impacts on the physical and biological viability of the water body, unless there are significant overriding concerns pursuant to Section 15088 of the guidelines for implementation of CEQA.

POLICY 26 (X-27) The County shall attempt to establish regional coordination of water resource management agencies.

VEGETATION AND WILDLIFE

POLICY 1 (X-33) The County will act to conserve and enhance vegetation, wildlife, and fisheries resources.

POLICY 2 (X-33) San Diego County shall coordinate with appropriate Federal, State, and local agencies to conserve areas of rare, endangered, or threatened species.

POLICY 3 (X-33) The County will use the Environmental Impact Report (EIR) process to identify, conserve and enhance unique vegetation and wildlife resources.

POLICY 4 (X-33) Wildlife conservation shall be given a high priority in County park acquisition and development programs.

POLICY 5 (X-34) San Diego County shall encourage the use of native plant species in review of landscaping and erosion control plans for public and private projects.

POLICY 6 (X-34) If a project is determined to have a significant adverse impact on plants or wildlife, an acceptable mitigating measure may be a voluntary donation of land or monies for acquisition of land of comparable value to wildlife.

POLICY 7 (X-34) The County shall establish procedures for acquiring significant wildlife habitats in areas of rapid urban development and areas of projected urban development.

POLICY 8 (X-34) The County will support legislation which limits the commercial fishing of anchovies to bait fishing in near shore waters.

POLICY 9 (X-37) When significant adverse habitat modification is unavoidable, San Diego County will encourage project designers to provide mitigating measures in their design to protect existing habitat.

POLICY 10 (X-37) San Diego County shall investigate the establishment of public Off-Road Vehicle (ORV) parks and encourage private ORV parks in appropriate locations (same as Soil Category Policy 12).

POLICY 11 (X-38) Initiate preparation of a regionwide comprehensive fire-fuel management plan.

POLICY 12 (X-38) The County will attempt to identify, reduce, and eliminate all forms of pollution which adversely impact vegetation and wildlife.

POLICY 13 (X-38) Flood control measures shall, whenever practical, utilize natural floodways and floodplains, maintaining riparian habitats and historic stream flow volumes.

POLICY 14 (X-38) Sand mining rehabilitation plans shall specifically address the enhancement of vegetation and wildlife.

POLICY 15 (X-38) San Diego County shall discourage the use of wild native animals as pets.

POLICY 16 (X-38) The County will regulate major land-clearing projects to minimize significant soil erosion, destruction of archaeological, historic, and scientific resources and endangered species of plants and animals (same as Policy 11 in Soils).

POLICY 17 (X-39) No use or subject to the San Diego environmental impact review process shall be permitted which in the determination of the Board of Supervisors (or other body which has been delegated decision-making authority by the Board) would have significant adverse impacts on: (1) any species of plant or animal identified as rare, endangered, or threatened by the State of California or the U.S. Department of the Interior, or (2) any valuable and unique natural resource or habitat, unless there are significant overriding social and economic concerns.

MINERALS

POLICY 1 (X-48) Within its authority, the County will use those management programs which conserve construction quality sand resources in the entire County to serve present and future demands.

POLICY 2 (X-48) The County will regulate sand extraction activities to minimize hazards and conflicts with other land use as well as to preserve and enhance the appearance of the area.

POLICY 3 (X-48) The County will manage construction quality sand resources by initiating a program to:

Stage One Amend the County General Plan - 1990, Land Use Element, by designating resource conservation areas for the extraction of construction quality sand.

Stage Two Adopt a Specific Plan (as defined by State planning law -see Appendix J) for each resource conservation area.

Stage Three Issue Special Use Permits to implement such Specific Plan.

POLICY 4 (X-51) If Stages One and Two have not been completed, extension of existing Special Use Permits will be based upon the merits of each application.

POLICY 5 (X-51) Special Use Permit conditions of approval will provide for optimum utilization of on-site sand resources, long-term permits, site rehabilitation and reuse, and minimal environmental disruption.

POLICY 6 (X-53) Within its authority, the County will use those management programs which conserve coarse aggregate and other construction material resources in the entire County to serve present and future demands.

POLICY 7 (X-53) The County will regulate quarrying activities to minimize hazards and conflicts with other land uses, as well as to

preserve and enhance the appearance of the area.

POLICY 8 (X-55) The County will, to the extent possible, protect and preserve mineral deposits and historical mining sites available for necessary commercial extraction, and for scientific, educational, and recreational uses.

POLICY 9 (X-55) The County will, to the extent practical, protect and preserve unique geological features from destruction, damage, or loss.

SOIL

POLICY 1 (X-58) The annual status of the environment report shall include an inventory of areas having a high agricultural potential.

POLICY 2 (X-58) The County General Plan will be amended to include an Agriculture Element which will consider all aspects of the agriculture industry, and will designate exclusive agriculture areas.

POLICY 3 (X-58) The County will analyze, improve and promote methods for preserving agriculture.

POLICY 4 (X-59) County agencies involved in the preparation or review of environmental impact reports shall refer to the United States Department of Agriculture "Soil Survey" if more detailed data and maps are not available.

POLICY 5 (X-60) The County will utilize existing and evolving geologic, geophysical and engineering knowledge to distinguish and delineate those areas which are particularly susceptible to damage from geologic phenomena.

POLICY 6 (X-61) The County will seek to preserve natural terrain features through the adoption of guidelines and regulations.

POLICY 7 (X-61) The County recognizes the need to assess the physical suitability of a project site for both the proposed use and proposed density.

POLICY 8 (X-61) The County will seek to protect coastal bluffs through the adoption of guidelines and regulations.

POLICY 9 (X-61) To prevent erosion and slippage in man-made slopes approved low maintenance trees, bushes and grasses which establish themselves quickly should be planted.

POLICY 10 (X-62) The County will regulate major land clearing projects to minimize significant soil erosion, destruction of archaeological, historic and scientific resources and endangered species of plants and animals (same as Policy 16 in Vegetation and Wildlife Habitat).

POLICY 11 (X-62) San Diego County shall investigate the establishment of public off-road vehicle parks and encourage private ORV parks in appropriate locations (same as Vegetation and Wildlife Habitat Policy 10).

POLICY 12 (X-62) Whenever soils and geology reports are made available to the public they shall have a layman's summary.

ASTRONOMICAL DARK SKY

POLICY 1 (X-66) The County of San Diego will act to minimize the impact of development on the useful life of the observatories.

CULTURAL SITES

POLICY 1 (X-69) The County shall take those actions which will seek to conserve and protect significant cultural resources.

POLICY 2 (X-70) Conservation of cultural resources shall be given a high priority in County park acquisition and development programs.

POLICY 3 (X-70) San Diego County shall coordinate with appropriate Federal, State, and local agencies to conserve cultural resources.

POLICY 4 (X-71) The County will use the Environmental Impact Report process to conserve cultural resources.

POLICY 5 (X-71) Encourage use of open space easements in the conservation of high-value cultural resources.

Chapter 2

General Conservation

Conservation of natural resources has assumed a renewed significance relative to land use planning since the adoption of the California Environmental Quality Act (CEQA) by the State Legislature in 1970. The designation of resource conservation areas for San Diego County's most significant resources will be a major step toward the planned management, preservation, and wise utilization of these resources. The preparation of an annual report on the status of the environment will provide a measure of the cumulative impact that the decisions or lack of action are having on natural resources.

FINDINGS

Finding 1 San Diego County does not have ordinances or standards which directly provide for the conservation of its natural resources.

Finding 2 San Diego County is not currently assessing the cumulative impacts on the environment of its approval of individual actions.

Finding 3 San Diego County has adopted an Initial Growth Policy (August 28, 1974) which provides "an operational definition and framework for achieving many of the general goals which have already been adopted by the Board of Supervisors."

POLICIES AND ACTION PROGRAMS

POLICY 1 The San Diego County General Plan will include provisions for the conservation of natural resources.

Action Program 1.1 Initiate a program to amend the San Diego County General Plan by the addition of resource conservation areas. The Integrated Planning Office (IPO), in cooperation with appropriate organizations, will identify resource conservation areas and compatible land use categories which, upon adoption, will become a part of the San Diego County General Plan. Resource conservation areas will be delineated on the Land Use Element map as overlays which call for special design considerations. These special design considerations will, of necessity, vary depending upon the conservation objectives of each particular resource. The specific resource conservation areas shall include:

- Groundwater problem areas -- See Water Action Program 6.1
- Coastal wetlands -- See Water Action Program 23.1
- Native wildlife and habitat -- See Vegetation and Wildlife Habitat Action Program 1.1
- Construction quality sand areas -- See Minerals Policy 3 and Action Program 3.2
- Littoral sand resource areas -- See Minerals Action Program 9.2
- Astronomical dark sky areas -- See Astronomical Dark Sky Action Program 1.3
- Archaeological and historical sites -- See Cultural Sites Action Program 1.1

POLICY 2 San Diego County will monitor and issue a public report on the status of natural resources.

Action Program 2.1 Prepare a report on the status of the environment in San Diego County. This report will be prepared and issued annually by the Integrated Planning Office (IPO). The first step will be to identify the indicators of environmental quality to be observed and to recommend observation and recording techniques to be used. This report will include quantitative and qualitative measures of the changes of the status of the environment, with emphasis on natural resources. It will also include recommended ordinance or procedural revisions which could conserve the environment and/or resources. This report will be used by the public for preparing draft Environmental Impact Reports (draft EIR's); Community Services Agency, the staff for evaluation of draft EIR's, General Plan amendments, Department of Land Use and Environmental Regulation recommendations to the Board of Supervisors, Planning Commission, and Board of Zoning Appeals, and growth policy modifications; and the Board of Supervisors, Planning Commission and Board of Zoning Appeals in decision-making.

POLICY 3 The Integrated Planning Office will begin to establish an environmental data repository. This repository will be composed of significant documents which, in the opinion of County personnel, will aid proponents of projects to better assess the environmental impact of a proposed action.

Chapter 3

Water

WATER SUPPLY

The continued growth and development of San Diego County is dependent on the availability of an adequate supply of potable water. The manner in which available water resources are managed in coordination with land use planning can have major impacts on the County's population growth, economic development, and environmental quality.

The combination of reduced local water resources and a marked population increase has made the County of San Diego almost entirely dependent upon imported water. Only 28 percent of the County land area, but 96 percent of the population, is served by imported water. *See Figure 1*

The San Diego County Water Authority (SDCWA) purchases about 350,000 acre-feet annually and sells it to 22 member agencies. This water is conveyed by four parallel aqueducts and stored in reservoirs in the foothills of the coastal plain. From these reservoirs, it is distributed to San Diego's coastal areas through an extensive network of pipelines.

According to the SDCWA, water requirements for the County are expected to increase from approximately 350,000 acre-feet in 1974 to 420,000 acre-feet in the year 2000.(1)

Until 1947, when the first San Diego aqueduct was constructed, domestic, industrial, and agricultural water supplies were totally dependent on local groundwater and surface water.(2) Currently, about 50,000 acre-feet of local water supplements the imported water. In addition, all of the desert

and mountain areas, and much of the foothill regions, have no water supply other than locally derived water. In those areas groundwater is the major water resource, as most surface water is too variable to be a reliable water source and rights to this water are held by local water agencies.

All water that exists below the ground surface, in the openings of soil and rocks, is called subsurface water. That water in those openings which are completely saturated is called groundwater. The upper surface of this saturated zone is known as the water table. There is considerable misconception and mysticism about groundwater. Groundwater does not normally occur in underground rivers, streams, pools and lakes of underground veins.

Water-bearing rock that will yield groundwater in usable quantity to wells and springs is referred to as an aquifer. In San Diego County there are three principal aquifer types:

- Clay, sand and gravel deposits which fill many river valleys, mountain meadows and desert areas;
- Fractured and weathered crystalline rocks in the mountains and foothills; and
- Consolidated sedimentary rocks (Tertiary age) (*see Figure 3, Geologic Time Scale, pg. X-42*) of the coastal plain and desert regions.
- Consolidated sedimentary rocks (Tertiary age) (*see Figure 3, Geologic Time Scale, pg. X-42*) of the coastal plain and desert regions.

The water table is generally less than 50 feet below the ground surface and approximately follows the surface topography. Groundwater movement through the aquifer is slow, generally ranging from a few inches to tens of feet per year. Under natural conditions, long-term discharge (springs, seeps, stream flow) will equal long-term recharge.

Groundwater mining occurs when withdrawals are made from an aquifer at rates which exceed net recharge. The problem becomes serious when this practice continues over a period of time. Groundwater mining may result in water table declines, increased pumping cost, salt water intrusion, land subsidence, and loss of storage capacity in the aquifer. Mining may occur in aquifer systems having ample recharge, as well as those having negligible recharge.

FINDINGS

Finding 1 The source of 90 percent of San Diego County's water is from the Colorado River. In the near future, Northern California water will replace a significant portion of the Colorado River water used in the San Diego region.(3)

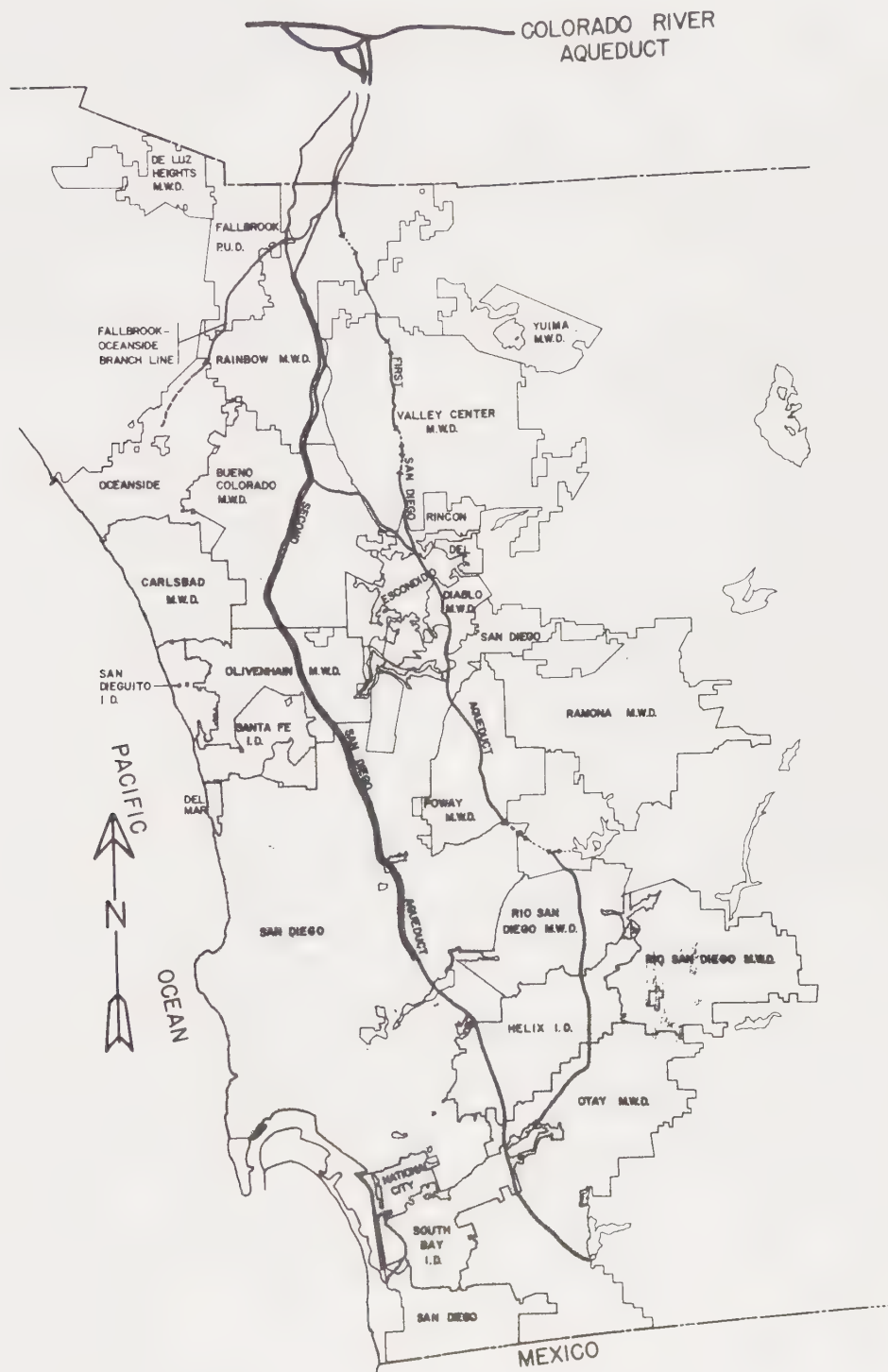
Finding 2 The amount of Colorado River water available to San Diego County will decrease in the future. As a result of the United States Supreme Court decision (Arizona vs. California), California will be subject to the loss of nearly half of its current supply of Colorado River water. As a result of this loss, Southern California's contract for Northern California water has been significantly increased by the State.(1)

Finding 3 The overall quality of Colorado River water has been deteriorating over the last several years.(2) The traditional problems of high concentrations of total dissolved solids and hardness have been compounded by other problems:

- Increased recreational use of the watershed upstream of the diversion point of Parker Dam has increased salinity.
- Periodic cleaning of the main aqueduct by the Metropolitan Water District increases the turbidity of water transmitted to San Diego.
- Agricultural irrigation in the upper Colorado River Basin has increased the salinity of the river.(4)
- From the early 1950's, the construction of new reservoirs in the Upper Colorado River Basin, additional water diverted into the watershed, and irrigation return flows have gradually increased salinity levels of the River.

Finding 4 Northern California water is of generally better quality than Colorado River water. The quality of Northern California water will be an improvement over Colorado River water from the standpoint of hardness and total dissolved solids; however, it will be poorer from a physical and sanitary standpoint.(5) The State Department of Public Health is requiring complete treatment of Northern California water before it may be used for domestic purposes. The State is also requiring, by 1989, complete treatment of Colorado River water.(6).

Finding 5 Distribution systems of imported water are presently located only in the western portions of San Diego County. Water is transported through four pipelines to the western third of the County. It is distributed to 96 percent of the County's population by the San Diego County Water Authority (SDCWA) through its 22 member agencies. There are no known active plans for introducing imported water to the eastern portion of the County, although there are no governmental policies to restrict the construction of an aqueduct in this area.



SAN DIEGO COUNTY
WATER AUTHORITY MEMBER AGENCIES

Figure - 1

Finding 6 Agricultural water use amounted to 22 percent of the total 350,000 acre-feet of water produced by the SDCWA agencies in 1973.(1) In the past several years this percentage has steadily decreased, although the number of acre-feet has been increasing. This trend is expected to continue as population grows.

Finding 7 The County has only limited control over placement of major water facilities in the unincorporated area. The Board of Supervisors do not serve as the Board of Directors for any water districts and the County has no direct jurisdiction over the installation of lines or facilities.

Finding 8 The availability of groundwater is an important consideration in determining the appropriate intensity of development in all areas of the County not served by imported water.

Finding 9 The County does not have uniform standards and procedures for the determination of groundwater quantity. In recent years, conflicting data as to the adequacy of local groundwater has been presented to the County.

Finding 10 Recent studies and case histories indicate that the total groundwater resources in the eastern portions of the County are less than previously estimated.(7,8,9,10,11) The increased use of water and 30 years of drought have lowered water tables and, in some instances, have reduced the discharge of wells and springs.

POLICIES AND ACTION PROGRAMS

POLICY 1 Regional estimates of the need for water should be based on land use and population projections derived from the General Plan.

POLICY 2 Decisions regarding the location, size, and timing of service extensions will be in conformance with adopted growth management policies.

Action Program 2.1 Coordinate water service expansion with the extension of other needed services and facilities.

POLICY 3 The County shall support programs which assure an adequate supply and quality of water to meet the present and future population needs and to insure this water is provided in concert with environmental and growth management policies.

Action Program 3.1 Direct IPO and CSA to prepare a comprehensive water inventory. The inventory should include present and projected water consumption and costs, reclamation feasibility and cost, and an analysis of environmental and land use implications. This inventory will be reviewed by the task force recommended in Action Program 26.1.

POLICY 4 Reduce local reliance on imported water.

Action Program 4.1 Initiate education and incentive programs to: increase the utilization of wastewater reclamation, study weather modification and its impacts, encourage desalinization of sea water and promote other technological advancements.

Action Program 4.2 Initiate a water conservation education program.

Action Program 4.3 Initiate a program to identify water conservation measures that can be instituted by the County of San Diego.

POLICY 5 Water distribution systems should be designed and constructed to economically accommodate future use of reclaimed or desalinized water when technologically and economically feasible. Construction of such compatible distribution systems may be less costly than future costs of modifying existing systems to accommodate other water sources.

POLICY 6 Conserve groundwater resources in areas where imported water is not available. The management objectives will be:

- Cumulative groundwater extraction will not exceed the short- or long-term groundwater resources of the area;
- Cumulative groundwater extraction will not significantly adversely affect flora, fauna, springs, streams, or nearby water rights of property owners;
- Aquifers underlying the project site will be capable of supplying the water required; and
- Groundwater quality will not be significantly degraded by surface or subsurface discharge of wastewater.

Action Program 6.1 Establish, when appropriate, groundwater conservation areas for specific areas of the County not served by imported water and experiencing groundwater problems or which have a high potential for such problems. The Integrated Planning Office will recommend areas to be designated on the Land Use Element and propose policies and ordinances to conserve the groundwater.

Action Program 6.2 Establish standards and procedures in conjunction with other agencies for performing well and aquifer tests for groundwater quantity.

Action Program 6.3 Prepare regulations which provide that nonagricultural projects requiring discretionary approval, which will utilize two or more acre-feet of groundwater per year, shall be denied if they cannot meet the objectives of Policy 6 or provide adequate mitigation. Such projects shall provide documentation of an adequate supply of groundwater prior to approval. Note: 2 acre-feet of water will supply 6 dwelling units

with average size families for one year.

Action Program 6.4 Establish specific requirements and procedures in conjunction with other agencies for documentation of an adequate supply of groundwater. The following information must be included:

- Geological report with emphasis on hydrologic aspects of project site and adjacent areas;
- Groundwater budget for project site and drainage basin upstream of project site;
- Analysis to show how this project will affect groundwater availability of existing and future projects in the area; and
- Description of the impacts that the removal of groundwater will have on flora, fauna, springs and streams in the area.

WASTEWATER DISPOSAL

A major portion of San Diego County's sewage is disposed of in the Pacific Ocean. Inland communities unable to connect to the ocean outfall systems have systems which discharge treated wastewater into stream beds or reclaim the wastewater for nondomestic purposes. Although the ocean outfall disposal system appears to cause no significant, immediate, short-term adverse effects, the long-term effects have not been adequately assessed. Inland disposal systems, including individual dwelling disposal systems, have sometimes resulted in health hazards which have required corrective action by the County Health Department.

FINDINGS

Finding 11 Responsibility for planning wastewater reclamation and disposal on a County-wide basis is shared by Federal, State, and local agencies.

- The United States Environmental Protection Agency (EPA) was authorized to create effluent limitations and performance standards for industries and publicly-owned waste treatment plants by the Water Pollution Control Act of 1972 (P.L. 92-500). The Act also sets forth new enforcement powers and strict deadlines.

- The Regional Water Quality Control Boards (RWQCB) have adopted "Comprehensive Water Quality Control Plans".(12) The Boards' Plans are aimed at assuring the water quality of the region. The Plans call for secondary treatment, some reclamation on a local basis, and ocean disposal of excess waste water. Continued use of septic tanks and leach field systems are proposed to dispose of domestic wastewater in areas not served by a central sewer system. Communities such as Julian and Pine Valley which cannot economically connect to an ocean outfall will continue to use land discharge systems.

- The Comprehensive Planning Organization (CPO) has adopted goals, objectives, and policies to serve as guidelines by which to judge applications from local public agencies for Federal financial assistance for construction of sewage disposal systems.(13) The CPO's "Water, Sewerage and Flood Control Systems Plan and Implementation Program" considers not only how facilities can best be constructed, but also assesses how needs can best be met within the context of comprehensive planning for regional development and conservation. The provisions of this Plan and Implementation Program are applied only when Federal financial assistance is required.

- The cities and special districts within the region usually accomplish the planning and construction of wastewater disposal and reclamation facilities. These plans are developed on an area-by-area basis and are constrained by political boundaries. Many existing sewer districts are small and often several districts serve a single regional growth area.(14) To overcome coordination problems, some agencies have consolidated their planning efforts.

Finding 12 Most wastewater in San Diego is presently disposed of through ocean outfalls after primary or secondary treatment.(12) The four ocean outfall facilities and their design capacities are:

- Encina Joint Powers Treatment Plant (6.75 mgd)
- San Elijo Joint Powers Treatment Plant (2.0 mgd)
- City of San Diego - Point Loma Treatment Plant (88.0 mgd)
- City of Oceanside Treatment Plant (4.8 mgd)

All of these facilities are undergoing or contemplating expansion. A few of the outlying communities and urban areas, such as Ramona, Pine Valley, Julian, Fallbrook, Rancho Santa Fe, and Santee/Lakeside utilize partial land discharge systems.

Finding 13 San Diego County has experienced no major problems associated with wastewater disposal via ocean outfalls.(12) However, the long-term impacts associated with disposal of primary treated wastewater via ocean outfall have not been adequately assessed. The "Comprehensive Water Quality Control Plan for the San Diego Basin" prepared by the California Water Quality Control Board, San Diego Region calls for ocean outfall systems to be upgraded to at least secondary treatment.

Finding 14 Some inland disposal systems may result in potential public health problems. A building moratorium was established by the Board of Supervisors for the Santee/Lakeside/Alpine area because the nutrient rich wastewater was resulting in increased mosquito problems along the San Diego River. (15,16)

Finding 15 Some wastewater reclamation is presently underway. The most notable example of wastewater reclamation in the County is the Santee County Water District's reclamation project. For a time, tertiary treatment was provided for about half (2 mgd) of the total plant capacity under a demonstration grant from the Federal Government. Tertiary treatment was discontinued in 1971. At the present time, the plant operates at the secondary level with some reclamation. Some discharge is percolated into the ground which acts as a natural filter from the final oxidation ponds. The water then flows into the first of seven recreation lakes. Body contact is not allowed in the lakes. The water is sold for irrigation use or discharged to the San Diego River from the last lake. Approximately 3 mgd of secondary treated wastewater is not reclaimed and is released to the San Diego River. The District is under order by the Regional Water Quality Control Board to discontinue discharge to the San Diego River. (16)

Ramona will soon have an additional system for reclaiming 150,000 gallons of water per day. The reclaimed water will be sprayed on 300 acres of crops or stored in a reservoir until needed. The wastewater reclamation system in Otay uses the drip irrigation method for disposal.

Finding 16 Reclaimed water is generally more expensive than imported water for general purposes. The gap between the cost of reclaimed water and imported water may decrease with rising energy costs and stiffer discharge

requirements by Federal and State agencies. For some industrial and agricultural uses, reclaimed water has proven to be more economical than imported water. Coordinated research and development is continuing in the reclaimed water field. Water-care is one confederation of California agencies which is promoting research at the State level.

Finding 17 Land use and sewage disposal planning have proceeded independently even though these activities are closely related. There is a push/pull effect between community growth and the development of sewage disposal systems. Provision of sewers to an area facilitates growth; conversely, growth in an area creates a demand for adequate sewers. The availability of sewers is, in part, an inducement for property owners to seek urban levels of development.

In practice, growth may have been encouraged by provision of pipelines with capacity in excess of current needs. Sewer facilities are oversized in part to provide a higher margin of reserve capacity. From a strictly economic standpoint, it has been more efficient to provide utility lines with the capacity to accommodate the anticipated demand rather than only the immediate demand. Land use plans usually cover a period of no more than 20 years; the expected life of major water-related facilities is usually at least 40 years. (13) It is reasonable, at least from the standpoint of engineering economics, to construct facilities of sufficient size to handle a relatively large growth in demand which might occur during the 40-year-plus life of the facility. Water and sewerage agencies do not always base their projected need on zoning or general plans because they are often changed.

Finding 18 Limitations on sewer interceptor connections or tie-ins can be used to augment land use

controls. Board of Directors of Sanitation Districts (County Board of Supervisors) Policy 1-51 (October 23, 1973) states that:

"No service connections to interceptor sewers will be allowed, except upon the specific approval of land use by the Board of Supervisors."

Finding 19 Many portions of San Diego County not served by public sewage systems have severe soil limitations for the disposal of sewage effluent.(17) When a public sewage system is not available, a septic tank and leach field or seepage pit under certain circumstances are required to meet public health standards. Such systems usually fail 5 to 10 years after installation. Small lots or lots with steep slopes, rock outcroppings, or high water tables may not have sufficient room for expansion of the leach field or sufficient unsaturated soil depth.

Finding 20 An on-site sewage disposal permit must be obtained from the County Health Department. The Health Department generally requires percolation tests to determine the size of the leach field or seepage pit. When public health hazards exist, the Health Department may recommend a moratorium on new systems or require corrective action on existing systems. This action has been taken in several areas.

POLICIES AND ACTION PROGRAMS

POLICY 7 Encourage sewage treatment agencies in the same drainage basin to jointly plan and implement wastewater treatment programs. The Santa Margarita and San Luis Rey Watershed Planning Agency could serve as a model of such cooperative planning and programming.

POLICY 8 Wastewater discharges shall not adversely affect the beneficial uses of receiving waters. Wastewater

discharged to estuaries, wetlands, or the ocean should be treated or so dispersed that beneficial uses of the receiving water are maintained or improved.

Action Program 8.1 Seek amendments to current State requirements for sewage discharge if such discharge will enhance vegetation and wildlife and not adversely affect the public health and safety. Vegetation and wildlife may be considered a beneficial use of waste and receiving waters.

POLICY 9 Encourage sewage treatment agencies to research and utilize improved technologies and methods of sewage treatment and that the Health Care Agency be requested to give favorable consideration to methods other than ocean outfall and septic tanks.

POLICY 10 Storm drain run-off should be planned and managed to minimize water degradation, to reduce the waste of fresh water, to enhance wildlife, and to reduce the impact of erosion.

Action Program 10.1 Initiate a study to examine the feasibility of storing and treating storm water for reuse in irrigation or wetland development.

POLICY 11 The County will encourage projects which will promote the reclamation and reuse of wastewater. Such projects will be given funding priority in all water management programs.

POLICY 12 The County endorses the management principles from the Regional Water Quality Control Boards - Comprehensive Plans.(18) See Page X-19

POLICY 13 Decisions regarding the location, size, and timing of wastewater service extensions should be in conformance with adopted urban development policies contained in all

SAN DIEGO
Regional Water Quality Control Board
Management Principles

1. Encourage coordination among local agencies with regard to all aspects of planning and land use control.
2. Evaluate wastewater disposal and reclamation programs for compatibility with adopted general land use plans.
3. Wherever feasible, water quality systems throughout the basin shall provide for eventual wastewater reclamation.
4. The number of waste sources and independent treatment facilities shall be minimized, and planning shall direct these consolidated systems to maximize their capacities for wastewater reclamation in order to assure efficient management of wastes and meet potential demands for reclaimed water.
5. Land use practices, including agricultural practices, must assure protection of beneficial water uses and aquatic environmental values.
6. Promote rapid development of treatment and discharge systems which will provide for fail-safe protection of beneficial uses and aquatic environmental values.
7. Require both source control and pretreatment to minimize the discharge of conservative toxicants and biostimulants.
8. Wastewater treatment programs shall provide for appropriate disposition of surplus reclaimed waters, and of usable and unusable residues of reclamation processes.

Wastewater treatment facilities must be capable of controlling the quality of reclaimed water and the composition and concentration of residues from reclamation processes.
9. Industrial and municipal effluents shall contain essentially none of the following substances:

Chlorinated hydrocarbons	Mercury or mercury compounds
Toxic substances	Excessively acidic and basic substances
Radioactive substances	Heavy metals, such as Lead, Copper,
Certain grease, oil and	Zinc, Cadmium, etc.
Phenolic compounds	Other deleterious substances
10. Sewering entities shall implement comprehensive regulations to prohibit the discharge to the sewer system of those substances listed in paragraph nine (9) which may be controlled at their source.
11. Sewering entities shall implement comprehensive industrial waste ordinances to control the quality and quantity of organic compounds, suspended and settleable substances, dissolved solids, and all other materials which may adversely affect the operation of a municipal master treatment facility.
12. Applicants for state and federal grants for construction of waste treatment facilities shall be required to submit proof of implementation of adequate source control and of industrial waste ordinances.

13. Wastewaters percolated into the groundwaters shall be of such quality at the point where they enter the ground so as to assure the continued usability of all groundwaters of the basin.
14. Land discharge systems shall be designed for and be capable of year-round operation without direct surface discharge to surface waters.
5. Groundwater recharge with high quality water shall be encouraged.
16. Acquire and encourage others to join in using a modern comprehensive information gathering, storing and retrieval system to effectively aid in evaluating water quality throughout the basin.

COLORADO RIVER BASIN
Regional Water Quality Control Board
Management Principles

1. Waste treatment and discharge systems are subservient to their principal purpose, which is to optimize the quality of state waters and the reclamation of wastewaters for beneficial use.
2. The optimization of water quality will be considered in relation to environmental goals.
3. Wastewater treatment and discharge systems will be directed toward regionalization, but with due consideration to retaining reclaimable wastewaters as far upstream as is feasible.
4. Insofar as they affect water quality, land use practices will be controlled to ensure preservation of the integrity of usable groundwater basins.
5. Source control and pretreatment of wastes will be optimized to minimize degradation of water quality by toxicants, biostimulants, and filterable substances.
6. The transport of hazardous materials will be controlled to prevent spillage and leakage.
7. Wastes which have a long-term capability of polluting water will be discharged in such a manner and in such locations as to be protected against erosion or inundation which could occur as a result of maximum floods having a predicted frequency of once in a 100-year period.
8. The administration of grants and loans to sewerage entities shall include determination of implementation of adequate source control and industrial waste ordinances.
9. Evaporative loss of reclaimable wastewater is to be minimized.
10. The primary purpose of the Salton Sea is to receive natural and agricultural drainage and seepage waters.

REGIONAL WATER QUALITY CONTROL BOARD MANAGEMENT PRINCIPALS

Figure - 2

elements of the General Plan and current growth policies. Sewer service expansion shall be coordinated with the extension of other needed services and facilities.

POLICY 14 Prior to the approval of tentative maps, a letter must be provided by all affected sewage treatment agencies indicating the current unencumbered capacity and existing total capacity of their major facilities. For projects requiring an Environmental Impact Report, this information must be a part of this report.

POLICY 15 Modify regulatory procedures to prevent surface and groundwater pollution which results from failure of subsurface sewage disposal.

Action Program 15.1 Initiate studies by the Health Care Agency and the Integrated Planning Office which will:

- Delineate those areas which are likely to have septic tank problems. Areas presently or likely to be served by public sewers will not be included.
- Evaluate present and alternative testing procedures.
- Evaluate current design standards and building site requirements, including building code requirements.
- Evaluate new technologies for sewage disposal.
- Make appropriate amendments to the Land Use Element based on sewage disposal limitation.
- Evaluate the possibility of establishing sewer service districts which will provide maintenance of individual disposal systems.

DRAINAGE AND FLOOD CONTROL

Rivers and streams carry excess precipitation to the ocean or inland basins. Differences in rainfall, terrain, geology, and vegetative cover result in highly variable periodic stream flows. Running water will erode rocks until the total load of the stream equals the maximum amount of material that the velocity and discharge of the stream can carry. Streams carry this eroded material downstream. When the velocity or discharge of the stream is reduced, the sediment of the stream will be deposited.

This simple concept of a grading stream accounts for siltation of lagoons and reservoirs, migration of stream channels with time, erosion of stream channel banks, formation of many sand and gravel deposits and deposition of sand along the beaches.

Any modification to the stream channel (floodway) or floodplain will change the erosion and deposition rates up or downstream of the immediate area.

FINDINGS.

Finding 21 There are interrelated but separate effects of land use changes on the hydrology of an area, including changes in peak flow characteristics (floods), changes in total run-off, changes in the quality of water, and changes in the appearance of the area.

- Urban development increases the peak flood flow and decreases the lag time between a rainfall event and the ensuing flood.(19) Water runs off faster from streets and roofs than from natural vegetation areas. Construction of artificial channels, especially storm drains, increases the run-off rate.

- Urban development increases the size of an annual flood and decreases the time between major flooding events.(19)
 - The volume of run-off is governed primarily by infiltration characteristics and is related to land slope and soil type, as well as to the type of impervious surface and vegetative cover. The percentage of run-off in urban residential areas decreases markedly as lot size increases. For example, a 6,000-square-foot residential lot has 80 percent impervious surface, while a 15,000-square-foot residential lot has 25 percent impervious surface.(19)
 - As volume run-off from a storm increases, the size of flood peak also increases.(19) Run-off volume also affects low flows because in any series of storms the larger the percentage of run-off, the smaller the amount of water available for soil moisture replenishment and for groundwater storage.
 - All forms of man's activities and land use affect water quality. Agricultural use results in an increase of nutrients and pesticides in stream water and subsurface groundwater. A change from agricultural use to residential use tends to reduce these types of nutrients, but this is counteracted by such pollutants as oil, gasoline, and pesticides. The land use change generally has an adverse effect on water quality.
 - The disposal of human wastes, whether treated or not, may cause adverse impacts on water quality. Treated effluent may contain dissolved minerals and nutrients not extracted by sewage treatment. The nutrients may promote plant growth and, in turn, alter the balance on stream biota.
 - The disposal of solid waste material in refuse disposal centers can have adverse impacts on water quality. The decomposition of some solid waste material may result in polluting chemical reactions which could seep to nearby water sources.
 - Man's activities cause increased sediment generation by the exposure of the soil to storm run-off.(19,20) This occurs mainly when bare ground is exposed during construction. It is also well known that sediment production is sensitive to land slope. Sediment yield from urban areas tends to be larger than in rural areas even if there are only small and widely scattered areas of unprotected soil. In aggregate these scattered bare areas are sufficient to yield considerable sediment.
 - The amenity value of stream and river areas is especially affected by man.(19,21) The impression of a natural river, its channel, and its valley are usually considered to be an amenity to the appearance of an area. Man-made changes in channel position and size, and the accumulation of artifacts of civilization are aesthetically displeasing. Modification of streams and rivers often reduces or eliminates the natural biological community.
- Finding 22** Coastal San Diego County is subject to infrequent but sudden and severe floods.(22,23,24) The earliest historical reference to floods was recorded in 1769 with the founding of San Diego Mission de Alcalá. Examination of flood records shows that at least 25 of the last 195 years have been flood years. At least 10 times there have been major floods. In the future, major flooding will

occur in San Diego County. Except for the Santa Margartia in 1969, San Diego County has not experienced a significant flood during the past 30 years.

Finding 23 Historically, modifications to major streams and rivers in San Diego have often been undertaken without regard to environmental consequences. (22, 25) For example, construction of upstream reservoirs reduces groundwater recharge of major downstream aquifers.

Finding 24 The Department of Sanitation and Flood Control is presently delineating 100-year floodplains for the major San Diego County rivers. These maps will be used in conjunction with floodplain overlay zoning.

Finding 25 Existing Floodplain Overlay Zoning places some restriction on development of the floodplain of the major rivers under the jurisdiction of the County. Buildings designed for human habitation or as a place of work may not be constructed in the floodway. Flood-proofing is required for structures intended for human habitation within the floodplain.

Finding 26 During the past 25 years there has been increasing pressure to build in floodplain areas. Many commercial, industrial, and residential structures continue to be built in floodplains.

Finding 27 Potential changes of stream flow hydraulics (including subsurface flow) and adverse effects on dependent wildlife habitats must be considered when major modification to a stream is contemplated. Sections 1600-1603 of the California Fish and Game Code requires that the Fish and Game Department be notified when major stream modifications are planned. The Fish and Game Department determines mitigating measures if significant adverse impacts would result.

Finding 28 The County of San Diego has adopted floodplain regulations which qualify residents for federal flood insurance as required by the Flood Disaster Protection Act of 1973. As of July, 1975, no federally regulated bank or savings and loan association will be permitted to make a construction loan or grant a mortgage on property within a designated flood-prone area which is not insured.

POLICIES AND ACTION PROGRAMS

POLICY 16 Nonstructural flood protection methods will be used whenever practical for the conservation of floodplains.

POLICY 17 Where nonstructural flood protection methods are not practical because of the value of previous urban development, concrete-lined channels will be used only if all other structural methods are impractical.

Action Program 17.1 Review and revise where necessary, existing County regulations in conflict with Policy 17.

POLICY 18 The County will prevent filling or construction in the floodway. Uses such as sand extraction, recreational activities, and agricultural pursuits may be exceptions to this policy.

POLICY 19 Setbacks from minor streams shall be required for all new structures. Setback requirements to prevent structures from flooding could be substituted for front or rear yard setbacks.

Action Program 19.1 Revise County ordinances in compliance with Federal regulations to require setbacks from minor streams.

POLICY 20 The County will retain the present policy and program of delineating floodplains and applying floodplain overlay zoning to them.

POLICY 21 Encourage tax assessments for properties located within floodways to be commensurate with restriction of permitted uses.

Action Program 21.1 The County Board of Supervisors will propose State legislation which will grant tax reduction for lands located in a delineated floodway.

POLICY 22 The County will require flowage easements to be dedicated to the San Diego County Flood Control District at the time of development on all watercourses having a tributary drainage area of one or more square miles whenever adequate channel improvements are not provided.

Action Program 22.1 Review, and revise where necessary, the Subdivision Ordinance to require the dedication of flowage easements at the time of development.

WATER BODIES AND WETLANDS

In this semi-arid region, the normal water management procedure has been to catch all possible run-off during the infrequent occasions when it occurs. In the event of a major rainfall, the existing reservoirs offer limited flood protection. Calculations made to determine the extent of downstream flooding take into account various reservoir water level conditions.

Recreational use is a very important secondary function of the local reservoirs. People enjoy water-oriented recreation. Whether a reservoir is open or closed to fishing, boating, and picnicking depends upon the policy of the controlling agency or water district, as well as public health laws.

Lakes and reservoirs also form important fish and wildlife habitats and can be aesthetically pleasing.

Most of the San Diego County lagoons are the result of rising sea level and

the subsequent filling of drowned river valleys with sediments transported from inland streambeds. Lagoons typically have a short lifespan when measured in geological time and they are continually developing, aging, destroying themselves, and beginning anew as streams seek new courses to the ocean.

Estuaries are drowned river mouths where salt and fresh water intermix, usually along "tidal creeks"; lagoons are shallow bodies of water, usually separated from the ocean by offshore bars parallel to the coastline. While estuaries are typically flushed by tidal seawater twice each day, the sand bars isolating lagoons from the ocean may only be seasonally breached by high tides or fresh water floods.

A feature of many estuaries is the development of extensive tidal mud flats. These flats, in estuaries free from industrial pollution, are inhabited by extensive communities of burrowing and tube-building organisms feeding on suspended matter.⁽²⁶⁾ These flats form a concentrated food resource for tens of thousands of migrant and resident shore birds along the coast. However, when these mud flats become polluted with pesticides or petrochemicals, there is frequently a devastating effect on dependent shore birds.

Estuaries and wetlands are particularly vulnerable to uses by man that destroy their natural values. Their ecosystem forms a thin veneer of habitat between land, fresh water, and salt water. Estuaries and wetlands have been dredged for ports and marinas, subject to sedimentation from upland erosion, filled to provide more land for development, used for dumps for domestic salvage and industrial waste, and deprived of freshwater inflow by water diversions. Of the original 197,000 acres of basic wetlands (including marshes, bays, lagoons, sloughs, and estuaries) in California, 102,000 acres or 52 percent have been destroyed

by dredging or filling (these figures do not include San Francisco Bay). Of California's remaining estuaries, 62 percent have been subjected to severe damage and 19 percent have received moderate damage.(27)

In Southern California, 75 percent of some 125,000 acres of valuable wetlands have been destroyed or severely altered by man since 1900. Two-thirds of 28 sizable wetlands existing in Southern California at the turn of the century have been dredged or filled.

Since the middle of the 19th Century, some 12,500 acres of San Diego's coastal wetland areas have been dredged or filled. Of these, 7,000 acres have been dredged and the sea bottom of an additional 5,500 acres significantly altered. The majority of these alterations involved the creation of the present San Diego and Mission Bays, which are of great economic and recreational importance to the San Diego region and which still possess natural resources of educational and research values. Some of this dredging and filling was done in several of the coastal lagoons of the County, including the construction of the Atchison, Topeka and Santa Fe Railroad, Old Highway 101 and Interstate 5.(27)

Batiquitos Lagoon forms 246 acres of fresh and brackish water tidelands at the mouth of San Marcos Creek. San Elijo Lagoon consists of 154 acres of tidal marsh at the mouth of Escondido Creek.(18)

FINDINGS

Finding 29 The CPO's "Water Distribution and Sanitary Sewerage Systems Background and Policy Study," February, 1972, inventories all existing reservoirs in the County. This document listed 150 reservoirs with a combined capacity of 736,800 acre-feet.

Eight reservoirs in the County are used exclusively for collection and

storage of local water. Maximum storage capacity of these reservoirs is 365,345 acre-feet.(15)

Four major reservoirs in the County store both local and imported water.(15) These reservoirs are El Capitan, San Vicente, Lower Otay, and Sweetwater.

Finding 30 Many local reservoirs are used for fishing and picnicking; however, State law prohibits body contact sports when the water will go directly into domestic use.

Finding 31 The long-term potential of the local surface water supply is difficult to assess.(28,29,30,31,32) The maximum possible estimate has been 150,000 acre-feet/year in average years; however, 20 years of drought were experienced from 1945 to 1965 and the actual yield was much less. Since 1960, the locally-produced supply has ranged from a minimum of 20,600 acre-feet in 1961-62 to a maximum 82,300 acre-feet in 1969-70.

Finding 32 San Elijo and Batiquitos are the only lagoons which lie within the land use jurisdiction of San Diego County; they have been subjected to major environmental degradation during the last 75 years.

- Transportation routes have been placed through these lagoons without regard for the physical or biological consequences. This practice has resulted in restricted water flow and fish and animal movement.
- Water courses have been used as disposal areas for sewage, thus accelerating lagoon eutrophication. The land outfall system in Escondido Creek previously carried treated sewage effluent into San Elijo Lagoon.
- Upstream water courses have been dammed, halting most upstream water flow. Wohlford, Val Sereno,

and San Dieguito Reservoirs are located in the San Elijo drainage basin and San Marcos Reservoir is located in the Batiquitos drainage basin.

- Urban, agricultural, and industrial run-off have accelerated eutrophication.
- Inadequate erosion control has accelerated sedimentation of the lagoons.

Finding 33 The results of primary degradation of the lagoons have been cumulative in their effect. Decreased freshwater inflow allows beach sands to build up and block the lagoon entrances. Blocked entrances do not allow tidal flushing -a major process for removing nutrients and toxic substances brought into the lagoons from the landward side.

Finding 34 Lagoons are important to man and nature by providing wildlife habitat areas, open space, and an aesthetically pleasing landscape. Lagoons increase the community identity of coastal communities. They have historically served as nursery grounds for commercially and recreationally important fish species. Lagoons and estuaries support game species such as fin fish, shellfish, and wildfowl harvested for sport locally and elsewhere. These wetlands also serve as the last reservoirs for some endangered species which previously inhabited lagoons destroyed elsewhere. The California least tern, Light-footed clapper rail, and Belding's Savannah sparrow survive in both Batiquitos and San Elijo Lagoons.

Finding 35 Lagoons and estuaries are of extraordinary ecological importance because they exist at the interface between air, fresh water, salt water, and land ecosystems. Coastal and marine fisheries indirectly depend on these wetlands; terrestrial organisms which may not reside in the lagoons and

estuaries depend on them for food, forage, and cover. Birds migrating along the Pacific Flyway use these areas for foraging and resting.

POLICIES AND ACTION PROGRAMS

POLICY 23 The County will take those actions which will protect and enhance the San Elijo, Batiquitos, Las Pulgas, and Santa Margarita Lagoons.

Action Program 23.1 Initiate a program to establish coastal wetland resource conservation areas. The four lagoons in the unincorporated area of the County mentioned in Policy 23 will be so designated. The preparation and adoption of specific management plans and acquisition of required land for each lagoon shall be accomplished as soon as possible. The public acquisition of San Elijo and Batiquitos lagoons will be given the highest priority. All coastal management programs will be compatible with the proposed California Coastal Plan, if implemented.

Action Program 23.2 Conserve the natural quality of the San Elijo, Batiquitos, Las Pulgas and Santa Margarita lagoons by ensuring through County regulations that land use and development plans (including well-managed agriculture) of areas adjacent to the lagoons will be compatible with the natural environmental quality of the lagoons.

POLICY 24 Encourage adequately treated wastewater or imported water at sufficient velocity and volume to flush out the lagoons periodically to enhance lagoon rejuvenation. See also Vegetation and Wildlife Habitat Policy 13

POLICY 25 The filling and dredging of tidal marshes, brackish lagoons, estuaries and sloughs shall not be permitted except as a remedial management technique which would have beneficial impacts on the physical and

biological viability of the water body, unless there are significant overriding concerns pursuant to Section 15088 of the guidelines for implementation of CEQA.

COMPREHENSIVE WATER RESOURCE MANAGEMENT

The County of San Diego is calling for the regional coordination of water resource management. It has become apparent that without such coordination, the appropriate action taken by one agency can have detrimental effects upon another aspect of water-related management. For instance, there are major problems in the upper San Diego River area relative to sewage disposal, wildlife, and public health. The present state of the San Elijo lagoon is also evidence of inadequate governmental coordination.

The Regional Water Quality Control Boards (RWQCB), State Department of Water Resources (DWR), San Diego County Water Authority (SDCWA), and Comprehensive Planning Organization (CPO) provide a degree of coordination and perform regulatory functions on some aspects of water management. None of these organizations or the County, however, have the authority to implement a comprehensive water management program. Such a management program would cover all aspects of water resources and their relationship to land use, including flood control, water quality and wastewater treatment, conservation of vegetation and wildlife, and imported and local water supplies. Water management agencies are not currently required by Federal, State, or local legislation to coordinate their actions.

One of the principal benefits of regional coordination would be an increased ability of each agency to more accurately predict the long-range primary and secondary effects its projects would have on other agencies.

FINDINGS

Finding 36 No single agency in the County is responsible for all aspects of water resource management. Responsibility for various aspects of water resource management is divided among many public agencies. This division of responsibility is not by design, but has evolved over the years as new agencies were created in response to specific needs. While each agency is generally effective in pursuing the goals of its constituency, the single purpose nature of most agencies makes it difficult to accomplish interrelated planning of water resources.

Agencies with responsibilities in water resource management include:

- The Metropolitan Water District of Southern California and the San Diego County Water Authority, through its 22 member agencies, supply water. Despite the name, the County Water Authority and the County of San Diego have no organizational relationship.
- The California Regional Water Quality Control Boards establish water quality standards, particularly those for sewage treatment and discharges. The County of San Diego falls partially within two of the State's nine regional boards, the Colorado River Basin Region and the San Diego Region. These regional boards have the authority to issue discharge permits and to stop any action which would violate their water quality standards. Each of the boards' comprehensive plans do not address the relationship of water resource management and land use. The boards consult with other agencies and provide written comments on various proposed projects.

- The Comprehensive Planning Organization (CPO) is the regional planning agency responsible for reviewing applications for water and sewer service installation grants and coordinating some aspects of water management. The primary implementation authority of CPO is the certification for Federal funding through the A-95 review process of water, sewerage, flood control, and related projects. These projects must be found to be consistent with regional planning objectives. The CPO has stated that the direction and rate of urban growth should be controlled by the provision (or nonprovision) of water and sewer service. Its adopted plan elements indicate that control of land use must also depend on decisions regarding public facilities and services, zoning, taxation, and provision of open space in San Diego.

- The County of San Diego has no major responsibility for water supply, but it has many different roles in water management:

- Policies, plans, and regulations related to all elements of the General Plan.
- Flood control and floodplain management through the San Diego County Flood Control District.
- Operation of sewer and water systems through County sanitation districts and County service areas.
- Regulation of industrial waste discharges in the unincorporated area of the County.

- Other local, State, and Federal agencies are involved in some aspects of water resource management planning and implementation. (24) *See Appendix I*

POLICIES AND ACTION PROGRAMS

POLICY 26 The County shall attempt to establish regional coordination of water resource management agencies. All agencies dealing with some aspect of water resource management, including: Federal, State and local regulatory agencies; providers of water, sewer, siltation and flood control facilities; and appropriate wildlife management agencies should coordinate their programs to achieve reasonably acceptable objectives.

Action Program 26.1 Recommend an interjurisdictional task force to determine appropriate methods and organizational framework for formulating regional water management coordination between water management agencies. This task force should include representatives from the Comprehensive Planning Organization, Regional Water Quality Control Boards, State Department of Fish and Game, San Diego County Water Authority, Santa Margarita - San Luis Rey Watershed Planning Agency, sewer districts, San Diego County Flood Control District, Health Care Agency (HCA), Integrated Planning Office (IPO), Community Services Agency (CSA), and other appropriate groups and agencies. This task force will prepare a report to be reviewed by all of the jurisdictions participating and will not report directly to the Board of Supervisors. The IPO and CSA will provide staff support. Additional duties of this task force should include a review of funding sources, developing appropriate legislative proposals, and any other implementation methods.

Chapter 4

Vegetation and Wildlife Habitats

In highly urbanized Southern California, wildlife has taken an extremely subordinate role compared to other natural resources. With increasing leisure time, however, natural areas are becoming more important as places to get away from the rigors of modern life. Backpacking, auto camping, bird watching, fishing, and sport hunting are enjoyed by a very large segment of the population. Increased pressures on natural areas caused by recreation and development has demonstrated the need for more careful consideration of the conservation of local vegetation and wildlife resources.

Traditionally, the Federal and State Governments have held the responsibility for protecting local vegetation and wildlife. However, limited funds and manpower and the increased pressure on natural areas is resulting in the need for more conservation efforts by local governments.

NATURAL HABITAT

FINDINGS

Finding 1 The following was stated in the "Report of the Committee of North American Wildlife Policy":(33)

- "Each living thing survives and plays some essential part in the operation of a self-maintaining community of plants and animals. The community and its site, including climate, constitute the ecosystem -- the basic working unit of the biosphere.
- "Habitat is local environment. Its quality determines abundance or scarcity for any species. Habitat improvement is the fundamental need in producing more wildlife.
- "Man's ecosystem is the entire earth. He must plan its use, protection, and renewal. For the support of all life, its natural process of rejuvenation and replenishment must continue to operate. This is the great challenge of environmental deterioration.
- "Man's dependence on living things is a reality of survival. He must be willing to share the earth with other forms of life. Their right to exist should be an acknowledged ethic.
- "Environmental fitness may be judged by the welfare of many creatures. Regional declines of wildlife indicate maladjustment. They bespeak the need for identification of causes and remedial action.
- "Governmental or professional responsibility in resource management carries a paramount obligation to the general public interest.
- "Decades of this century have witnessed steady gains in useful biological knowledge. Among leadership there is growing sophistication in attitudes toward wildlife and its associated resources. From both science and philosophy we draw assumptions it seems constructive to state:

- "In many useful combinations, soils, waters, vegetation, and animal life are renewable resources - natural wealth and durable systems that can be preserved and improved through a knowledge of life processes. We regard the use of a renewable resource as optimal when it yields the most significant benefits to generations of the present while improving productivity for the future."

Finding 2 Vegetation, wildlife, and wildlands are important resources with definite immediate and long-term economic values to man. Because of the nature of the use of these resources and their utilization, it is often difficult or impossible to assign dollar values to these resources. However, some of these resource uses are listed below.

- Aesthetics and Recreation.
Tens of thousands of San Diegans enjoy vegetation, wildlife, and natural areas as passive recreation. These values and the people who enjoy them support a large recreation and tourist industry in San Diego County.

Hunting and fishing, both for sport and as a commercial enterprise, rely on a naturally functioning ecosystem to support the industries. A large number of support industries such as sporting goods, fishing tackle, and excursion boat companies also rely on a naturally functioning coastal ecosystem.

- Value to Agricultural Industry.
A naturally functioning ecosystem is essential for many forms of agriculture. Some insects act as necessary pollinators for agricultural crops. Other insects and birds prey on plant pests, many of which cannot be controlled by artificial means.

As a reservoir for resources needed in the future.

- Genetic reserves. Native plants and animals have adapted to natural conditions where they exist. Recent research has shown that natural species can be crossed with agricultural species to increase production or withstand normally adverse environmental conditions. "Beefaloes" are the result of crossing beef cattle with native buffaloes to produce a much faster maturing and hardy animal for beef production.
- Local scientists are investigating the potential for using naturally salt tolerant plants as genetic reserves to grow vegetables in saline soils. Native plants are sources of new landscaping materials.

- Future Commercial Resources.
Scientists in Eurasia have shown that native species such as the Eland (an antelope native to the area) can be domesticated. This source of protein is superior to many domestic species. Native San Diego species may be useful in the future for such uses.
- Other Resources. New products are constantly being developed from native plants. For example, substitutes for motor oil have been developed from the Jo joba plant. Kelp is harvested on the San Diego coast for agar and other chemicals used throughout the Western United States.
- Natural Processes. Plants and animals aid in the maintenance of natural physical and biochemical processes, some of which are indirectly utilized by man.

Plants and animals are responsible for the continuance of most of the elemental and biochemical cycles on which all life depends. The ocean and its organisms function to dilute and recycle limited amounts of sewage from ocean outfalls.

f. Biological Control. Native plants and wildlife established a balance prior to man's exaggerated environmental influences. These same controls frequently can solve new problems brought about by man. Natural predators can control species considered pests by man. For example, raptors, coyotes, foxes and weasels keep populations of rodents and insects to manageable levels. Larger predators or disease can control perturbations in deer populations induced by man or natural factors.

g. Value to Science and Education. Natural areas serve as living classrooms and laboratories for the study of natural biological processes. We have seen above how important an understanding of these processes is to man. The Kendall-Frost Marsh Preserve in Mission Bay and the South Bay Marine Biology Study Area in San Diego Bay are excellent study areas for local educational institutions.

h. Value as a baseline for Environmental Monitoring. Wildlife can act as a barometer for environmental pollution. The reproductive failures of the sparrow hawk in England indicated high pesticide levels in the environment.

Eutrophication or accelerated aging in surface waters demonstrates excessive phosphate levels in sewage entering estuaries. Geologists use the condition and type of surface vegetation to warn of landslides and earthquake

fault traces. Archaeologists use oak trees as indicators of potential Indian habitat sites.

- Erosion Control. Native plants have adapted to local soil conditions. They inhibit erosion and require no maintenance once established. As a natural ground cover, native plants absorb water and offer watershed protection, thereby reducing the potential for flooding.

Finding 3 It is the policy of the State of California to:

"prevent the elimination of fish or wildlife species due to man's activities, insure that fish and wildlife populations do not drop below self-perpetuating levels, and preserve for future generations representations of all plants and animal communities . . ."(34)

Finding 4 San Diego County has a variety of habitats, each unique by virtue of its composition and geographic distribution. The California Fish and Game Plan lists the following habitat acreages in San Diego County for 1963.(35)

<u>Habitats</u>	<u>1963 Acreage</u>	<u>Percentage of County Total</u>
Chaparral	1,121,580	41.2
Low Desert	645,780	13.7
Coast Sagebrush	364,365	13.4
Grassland	165,388	6.1
Urban-Industrial	122,275	4.5
Woodland-Grass	85,625	3.1
Agriculture	58,147	2.1
Pine-Fir-Chaparral	55,290	2.0
Juniper-Pinyon	35,165	1.3
Lakes, Bays, Reservoirs	32,795	1.2
Woodland-Chaparral	15,570	0.6
Barren	10,950	0.4
Inland-Sagebrush	5,190	0.2
Riparian (Streamside)	5,000	0.2
Marsh	1,000	trace
Seasonal Marsh	1,000	trace

Finding 5 A number of San Diego County areas have been identified as vegetation and wildlife habitats of national and statewide importance.(36) See Appendix B

Finding 6 The key to the preservation, maintenance, or enhancement of a fish or wildlife species is directly dependent upon the condition and extent of its habitat. Animals, like man, must have a suitable environment in which to live. Without it they die.(35) Animals can act as barometers of the quality of the environment. Reproductive failures among American Peregrine falcons, California Brown pelicans and Brandt's cormorants indicate that significant amounts of chemicals or pollutants exist in the environment.

Finding 7 Representative samples of each habitat or plant community must be conserved to maintain a viable, self-perpetuating ecosystem. Certain habitats increase in importance where they are locally endangered. Many rare and endangered species of plants and animals are specific indicators of threatened habitats or plant associations.

Finding 8 Scientific study of natural habitats by local academic institutions can provide valuable information for decisions affecting vegetation and wildlife.

Finding 9 The State has recognized the need to preserve wildlife habitats by modifying the Williamson Act and other open space laws. State law (Senate Bill 702 - Appendix I, adopted in October, 1973) provides that wildlife habitats on private property may be placed under an Open Space Easement. The County Assessor is required to assess Open Space Easements by using the average current per-acre value of such lands within the County, rather than their potential value.

Finding 10 The California Fish and Game Plan has identified five environmental concerns which apply to San Diego County:(37)

- Preservation of endangered species
- Conservation of riparian (stream-side) habitats
- Management of wetlands, bays, and estuaries
- Proper utilization of pesticides
- Management of water resources

Finding 11 San Diego County habitats support a number of species of wildlife considered by the California Department of Fish and Game, the U.S. Wildlife Service, and other conservation experts to be endangered, rare, or threatened.(38,39,40) See Appendix C The number of species on these lists increases each year.

Finding 12 The California Native Plant Society (CNPS) has identified 79 species of plants considered endangered or potentially endangered within San Diego County.(41) See Appendix D The CNPS has identified a total of 169 endangered species in the State of California.

Finding 13 There is no coordinated effort to inventory, monitor, or plan for the conservation of rare, endangered, or threatened plants, animals, or their habitats in San Diego County.

Finding 14 Conservation of endangered species must include management of all resources necessary for their survival. Thus, the endangered California least tern cannot be preserved by only setting aside beach nesting sites, because the species also requires shallow water fishing areas and mud flats for roosting.

Finding 15 Coastal sport and commercial fisheries are an important local economic resource. They are dependent on the existence of a stable anchovy population.

Finding 16 Bays, lagoons, and estuaries provide essential habitats in the life cycle of many popular sport fish.

POLICIES AND ACTION PROGRAMS

POLICY 1 The County will act to conserve and enhance vegetation, wildlife, and fisheries resources.

These actions may include land purchases, land use controls such as zoning, the establishment of wildlife preserves under the Williamson Act, purchase at less than fee, and other forms of tax relief.

Action Program 1.1 Initiate a program to establish resource conservation areas to conserve and enhance native vegetation and wildlife. These areas will include: areas of high value to wildlife; areas necessary for the protection and perpetuation of rare, endangered, and threatened species; and areas important for scientific study. The Integrated Planning Office will undertake necessary studies to designate and regulate resource conservation areas.

Action Program 1.2 Include the status and condition of rare and endangered species, riparian habitats, wetlands, natural lagoons, bays and estuaries, and water quality within San Diego County in the annual state of the environment report. *See Introduction*

Action Program 1.3 Publicize the wildlife habitat preserve provisions of the Williamson Act and other open space laws. The Public Information Office and the Community Services Agency will publicize program benefits. *See Soil Action Program 3.1*

Action Program 1.4 Accept all donations of land which have high wildlife value. Where appropriate, San Diego County shall attempt to exchange donated lands of high wildlife value with other jurisdictions equipped to protect and manage such lands for other

lands more appropriate to County needs. Criteria will be formulated by the Integrated Planning Office to identify lands of high wildlife value.

Action Program 1.5 Encourage early environmental analysis for impacts on native vegetation and wildlife, and prepare design criteria for public and private development projects.

Action Program 1.6 Encourage the expansion of agriculture greenbelt areas whenever possible in San Diego County.

POLICY 2 San Diego County shall coordinate with appropriate Federal, State, and local agencies to conserve areas of rare, endangered, or threatened species.

POLICY 3 The County will use the Environmental Impact Report (EIR) process to identify, conserve and enhance unique vegetation and wildlife resources.

Action Program 3.1 Include a detailed analysis of the nature and extent of potential adverse impacts in the EIR's of all projects which contain the following habitats:

- Grasslands
- Woodland-Grass
- Pine-Fir-Chaparral
- Juniper-Pinyon
- Lakes, Bays, Reservoirs
- Woodland-Chaparral
- Inland Sagebrush
- Riparian
- Marsh
- Seasonal Marsh
- Wildlife Migration Routes

POLICY 4 Wildlife conservation shall be given a high priority in County park acquisition and development programs.

Action Program 4.1 Prepare detailed guidelines for appropriate wildlife management as part of the revision of

the San Diego County General Plan Recreation Element.

Action Program 4.2 Initiate a wildlife conservation education program.

POLICY 5 San Diego County shall encourage the use of native plant species in review of landscaping and erosion control plans for public and private projects.

Action Program 5.1 Use compatible native plants for landscaping and erosion control on public projects whenever functional and economical. *See Soil Action Program 8.1*

POLICY 6 If a project is determined to have a significant adverse impact on plants or wildlife, an acceptable mitigating measure may be a voluntary donation of land of comparable value to wildlife.

Action Program 6.1 Revise appropriate ordinances and procedures to accept land of comparable value to wildlife as a mitigating measure. The County's selection of these mitigation areas will be based on the following criteria:

- Habitats or environmental resources in mitigation areas should be the same type as those impacted.
- Mitigation areas should be as close as practical to the impacted resource.
- High priority should be given to preservation of endangered habitats or other resources as mitigation areas.
- Mitigation areas within or adjacent to designated (planned) conservation areas (i.e. State reserves, ecological preserves, U.S. Forest, etc.) will be given high priority.

POLICY 7 The County shall establish procedures for acquiring significant wildlife habitats in areas of rapid urban development and areas of projected urban development.

Action Program 7.1 Direct the Office of the Chief Administrator to determine whether the Local Park Land Dedication Ordinance is a reasonable vehicle for acquiring wildlife habitats, and if not, recommend alternate ordinances for this purpose.

POLICY 8 The County will support legislation which limits the commercial fishing of anchovies to bait fishing in near shore waters.

HABITAT MODIFICATION

FINDINGS

Finding 17 Although man's actions can enhance the environment and some native species, the majority of man-modified habitats are ecologically poor compared to those which have naturally evolved. Man-modified habitats typically require more water, nutrients, and energy to be sustained. They are simplified ecosystems whose populations are usually susceptible to wide fluctuations.

Finding 18 Large-scale habitat modifications may improve habitat conditions for certain species to the extent that they become a nuisance. For example, gulls are attracted to airports because the large expanses or runways are suitable for roosting. However, gulls may collide with aircraft and cause serious accidents. Gulls often feed at sanitary landfills and may become a nuisance. Many other species are similarly affected.

Finding 19 Native species frequently cannot adapt to man-made habitats. The example of swallows using man-made structures is an exception. Such animals as dogs, cats, pigeons, starlings, House sparrows, House finches,

and House mice are highly successful in man-made habitats. However, these animals frequently compete with native species and displace them in highly modified habitats. Specific examples of how we unknowingly encourage urban wildlife are:

- The design of buildings, bridges, and other structures frequently provides micro-habitats which attract urban wildlife. For example, building ledges and tile roofs provide nesting sites for House sparrows and pigeons, increasing unsanitary conditions, odor, and parasites.
- Landscaping with non-native plants provides food sources and roosting and nesting sites for urban wildlife. For example, starlings, House finches, and House sparrows often nest in ornamental palm trees.
- New roads provide avenues of colonization for introduced species and often form barriers to movement of native wildlife. Interstate Highway 8 apparently forms an impassable barrier to Peninsular bighorn sheep, a rare species in California. Automobiles act as nondiscriminatory predators of wildlife attempting to cross highways.
- Urban predators, such as dogs and cats, take a high toll of local native wildlife. These pets also transmit diseases such as rabies to and from wildlife.
- Misuse of sling-shots and air rifles is probably responsible for a significant percentage of local wildlife loss.
- Escaped pets may reproduce in the wild and become pests in nearby areas. The Monk parakeet, a serious agricultural pest in Brazil, has escaped captivity and

is breeding in several areas in the United States, including southern California. Several species of parrots, Brazilian cardinals, Mynas, and European jays survive freely in the San Diego area.

- Off-road vehicle misuse has caused serious erosion, plant destruction, and interfered with normal wildlife activity.
- Excessive fertilization of landscaped and agricultural areas has caused serious water quality problems.
- Excessive watering is harmful and sometimes fatal to many native species of plants, particularly chaparral species and native oak.

Finding 20 Vegetation removal is not presently subject to the environmental review process. Therefore, there is no method for monitoring its effects. Vegetation removal is the single, most important human action impacting local wildlife. Vast areas are sometimes cleared for agricultural purposes or residential development before filing an Environmental Impact Report.

Finding 21 Chaparral vegetation has been artificially prevented from undergoing the natural renewal process of periodic burning and regrowth. This unique and often unappreciated plant community apparently evolved with periodic burning and depends on burning to remain healthy. Artificial fire suppression, usually to protect property in chaparral areas, has led to an accumulation of vegetation with exceptionally high fuel content, increasing its fire hazard.

Finding 22 Artificial vegetation control methods, such as the use of herbicides and mechanical removal, may have adverse or beneficial environmental impacts on local vegetation and wildlife communities.

Finding 23 Controlled burning is the artificial method most closely matching the natural renewal process. This method does not usually cause adverse environmental impacts on vegetation and wildlife. In Southern California, it is difficult to fully control a chaparral burn. Furthermore, air pollution standards frequently do not permit controlled burning, even for fuel control purposes.

Finding 24 There is no County-wide comprehensive fire-fuel management plan which takes into account the natural renewal process of periodic burning and regrowth of chaparral. As a result, there is no overall schedule for timing of controlled burning or plan for the placement or design of fuel breaks.

Finding 25 A comprehensive multi-jurisdictional fire-fuel management plan is needed because:

- of catastrophic wild fires such as the Laguna fire of 1970;
- practical solutions can be tried and evaluated only on a large area and over a long period;
- evaluation of adverse and beneficial environmental impacts involve large-scale systematic applications of techniques to chaparral management problems;
- the degree of fuel management should approximate the scale of the wildfire problem; and
- there are no established criteria for applying multiple fuel management techniques.

Finding 26 Land management and fire control agencies have proposed a demonstration fuel management project. The project, to include 150,000 acres in the Laguna Mountains, would be the first of its kind in the State. This project will be known as Chaparral, Research, Environmental Analysis, and Management (CREAM).

Finding 27 Various types of pollution adversely impact vegetation and wildlife in San Diego County:

- Air pollution interferes with the photosynthetic process of many native plants.(42)
- Chemicals accumulate in the diet of many species of wildlife and become toxic. Wildlife may die directly from the toxic effects of some chemicals. Pesticides such as DDT have drastically decreased the reproductive ability of California Brown pelicans, American Peregrine falcons, and Brandt's cormorants.(43)
- Dams or diverse projects withhold natural river and stream flow, modifying habitats upstream and down.
- Sewage effluent frequently substitutes for natural river flow and contains a high proportion of nutrients. These nutrients frequently accelerate plant growth and anarobic chemical reactions which, in turn, adversely affect natural biological cycles.(44)
- Run-off from urban, agricultural, and industrial areas exposes vegetation and wildlife to concentrations of petrochemicals, pesticides, fertilizers, and other potentially harmful chemicals.
- Excessive noise interferes with feeding and reproductive activities of wildlife, decreasing production.(45)
- Litter may be ingested by wildlife, frequently causing their death.
- Heavy metals, a form of industrial chemical pollution, are often introduced to coastal wetlands, causing cumulative adverse impacts on vegetation and wildlife.

- Thermal pollutants from industrial cooling facilities modify the aquatic environments by affecting ambient temperatures. Aquatic organisms react by growth rate increase or decrease, upsetting natural ecological balance.

Finding 28 In the coastal plain and foothills, the modification of habitats for agriculture, heavy recreation, and urban uses has caused significant reduction in native vegetation and wildlife.(46)

Finding 29 The habitats of the coastal and foothill regions are in need of immediate environmental conservation measures because of rapid urban development occurring there.

Finding 30 San Diego County has lost 67 percent of its high-value coastal wetlands within the past 100 years.(47) This loss has resulted from: 1) the attractiveness for development of these scenic coastal wetlands; and 2) their short-term utility for waste disposal and their accessibility to transportation for industry. Conservation efforts in these areas have been hampered by inadequate land use controls and insufficient land acquisition funds.

Finding 31 The preparation of a coastal plan for California by the Coastal Zone Commission may solve some of the long-term problems of managing this resource.

Finding 32 Streamside or riparian habitats support a more diverse wildlife population than most other local habitat types.(48) There are only about 5,000 acres (0.2 percent of the total land area) of streamside habitat in the County. The California Fish and Game Plan estimates a 15 percent loss of this habitat by 1980.(49) This loss is greater than expected for any other habitat type. For these reasons, streamside habitats require immediate conservation measures in areas of rapid urban development.

Finding 33 Fresh water fishing is primarily limited to reservoirs where fish are stocked for sport fishing. Some areas of the lower San Diego River are also used, but other streams are intermittent and cannot support year-round fish populations.

Finding 34 The capture and use of native animals as pets has contributed to the decline of these animals in San Diego County. Although most native birds in San Diego County are protected by State and Federal laws, most reptiles and nongame mammals are not protected. The use of these animals as pets has usually led to the debilitation and eventual death of the animals and may lead to real health hazards to those keeping them.

Finding 35 Although initial studies of the effects of offshore sewage disposal have not indicated significant adverse impacts, studies offshore of Los Angeles and Orange Counties have shown an increase in diseases, such as skin tumors, of some local fish.(33)

POLICIES AND ACTION PROGRAMS

POLICY 9 When significant adverse habitat modification is unavoidable, San Diego County will encourage project designers to provide mitigating measures in their designs to protect existing habitat.

Action Program 9.1 Prepare quantitative and qualitative standards for determining significant adverse impacts on vegetation and wildlife. These standards shall define detrimental stream bed modification, habitat destruction, noise, air pollution, and effects on vegetation and wildlife.

POLICY 10 San Diego County shall investigate the establishment of public Off-Road Vehicle (ORV) parks and encourage private ORV parks in appropriate locations. Same as Soil Policy 12

Action Program 10.1 Initiate a program to establish ORV control zones where the use of ORV's is limited or eliminated from sensitive vegetation and wildlife habitats.

POLICY 11 Initiate preparation of a regionwide comprehensive fire-fuel management plan.

Action Program 11.1 Formulate a comprehensive fire-fuel management plan in conjunction with other agencies. This plan will be based on the results of projects such as CREAM. *See Finding 26*

POLICY 12 The County will attempt to identify, reduce and eliminate all forms of pollution which adversely impact vegetation and wildlife.

POLICY 13 Flood control measures shall, whenever practical, utilize natural floodways and floodplains, maintaining riparian habitats and historic stream flow volumes. No structures or excavations which adversely affect floodplain vegetation and wildlife, or decrease their value as migration corridors, should be permitted. *See Water Policy 17 and Policy 25*

Encourage the use of flowage and open space easements in floodplains and high value habitat areas for the conservation of vegetation and wildlife.

POLICY 14 Sand mining rehabilitation plans shall specifically address the enhancement of vegetation and wildlife.

Consider the wildlife value of the original site and the local status of that habitat in reviewing sand and gravel mining permits.

Encourage the development of sport fishing facilities where appropriate in sand extraction rehabilitation plans.

POLICY 15 San Diego County shall discourage the use of wild native animals as pets.

Action Program 15.1 Prepare and consider adopting an ordinance to make it illegal to possess native species of reptiles, birds, and mammals consistent with the California Fish and Game Code unless a valid permit is issued for scientific study or veterinary purposes.

Action Program 15.2 Initiate an educational program to inform County residents of the potential health risks and adverse environmental impacts of keeping native species of animals as pets.

POLICY 16 The County will regulate major land clearing projects to minimize significant soil erosion, destruction of archaeological, historic and scientific resources and endangered species of plants and animals.

Action Program 16.1 Direct the Community Services Agency to prepare a land clearance ordinance in conjunction with other appropriate agencies. This ordinance will establish a discretionary permit procedure. The ordinance should include:

- Minimum project size requiring a permit
- Standards for evaluating permits
- Mitigating measures
- Exemptions
- Appeal procedures
- Enforcement procedures

Action Program 16.2 Revise the Grading Ordinance to more clearly define "agricultural" grading.

POLICY 17 No use or development
subject to the San Diego environmental
impact review process shall be per-
mitted which in the determination of
the Board of Supervisors (or other
body which has been delegated decision-
making authority by the Board) would
have significant adverse impacts on:
(1) any species of plant or animal
identified as rare, endangered, or
threatened by the State of California
or the U.S. Department of the Inte-
rior, or (2) any valuable and unique
natural resource or habitat, unless
there are significant overriding
social and economic concerns. The
project sponsor shall demonstrate that
no significant adverse impact will
incur on such species or provide
adequate mitigating measures to
protect them.

Chapter 5

Minerals

San Diego County has a wide variety of mineral resources. Some of these, such as sand, gravel, and dimension stone, are essential to the construction industry and the region's economy. Other minerals occur in such limited amounts that they are of minor value.

Geologic factors determine the type, location, size, and concentration of all mineral resources. There is a direct association between specific types of mineral deposits and the host rock which contains those deposits. For example, in San Diego County gold and tungsten occur mainly in metamorphic rocks, while concrete quality sand is found in the floodplains of the major river valleys.

In San Diego County there are four general rock types(50):

- Most of the mountainous terrain in the eastern portion of the County is underlain with Cretaceous Age (see Figure 3, *Geologic Time Scale*) granitic rocks, including diorites, gabbros and quartz diorites.
- Mesozoic Age metamorphic rocks such as schist, gneiss, and marble crop out in the western foothills as elongated bands within the granitic rocks and in the desert east of the mountains.
- The coastal or western portion of the County is covered with essentially Tertiary Age flat-lying, consolidated sedimentary rocks. Sandstone, conglomerate and mudstone are the principal rock types. Tertiary Age consolidated

sedimentary rocks which have undergone extensive folding and faulting crop out in portions of the desert basin in the eastern portion of the County.

- Strips and patches of Recent alluvium, including sand, gravel, silt, and clay are found in the river and stream valleys, around the lagoons, in the intermountain valleys, and in the desert basins.

Economic factors. Geologic, not economic, considerations are the dominant factors determining the ultimate availability of most minerals.(51,52,53) Mineral deposits are generally rare and nonrenewable. The lifetimes of estimated recoverable reserves of most mineral resources at current mineable grades and rates of consumption are generally less than 150 years. For some minerals, such as crude oil, lead, and the precious metals, the reserves may be exhausted around the year 2000. Technological advances and increased prices will be negated in many cases by rapid population increases. Equally important is the lack of continuity of mineral concentrations in high grade ore bodies to those found in average crustal rocks which limit the ultimate availability of mineral resources.

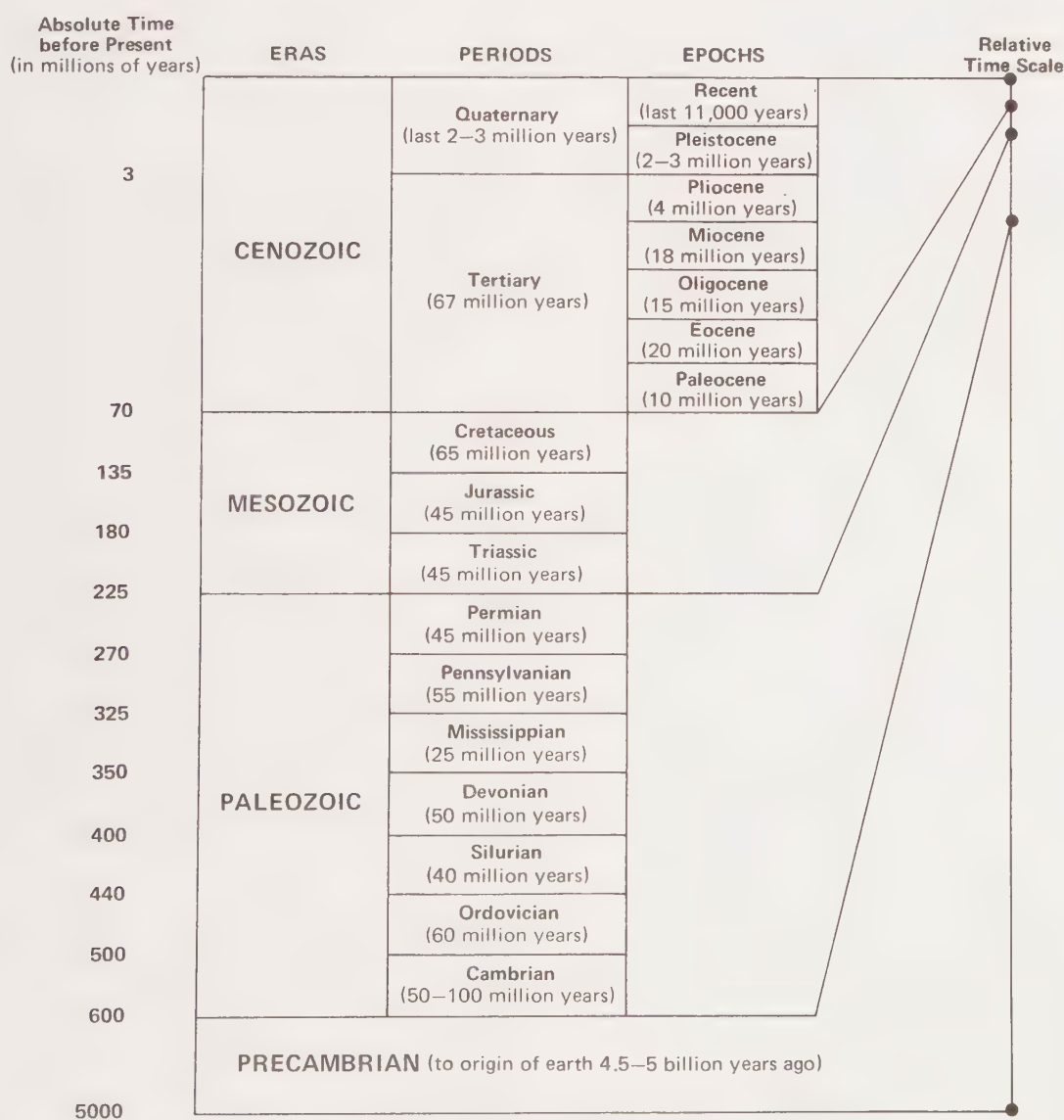
Economic factors usually determine when and if a mineral deposit will be mined. Obviously, sale proceeds must exceed the costs of mining, processing, and distribution. Rapid changes in the market value, as well as advanced mining technology, have major impacts on the economic feasibility of mining a particular mineral deposit.

The mineral products mined or excavated in San Diego County can be broken into two categories - high unit value and low unit value. Mineral products whose unit value is high enough to offset long-range transportation costs can compete on the world market. On the other hand, bulk products of low unit value must be mined near the point of use.

Land use conflicts. Mining activities tend to create large, unsightly holes and scars on the land. They may also

generate dust, noise, blasting vibrations, and truck traffic. For these reasons, they are commonly considered noncompatible land uses in residential or recreational areas.

Encroachment of residential areas is a very common problem affecting sand and gravel deposits near cities. Mining sites of these low value products need to be located quite close to where they are used, which makes them susceptible to being overrun by the very communities they serve.



GEOLOGIC TIME SCALE

Figure - 3

Other factors. Except for construction materials, most of the mineral deposits in San Diego County cannot be economically mined at this time. However, the following factors should be taken into account in deciding whether a deposit is worth protecting:

- Changes in economic situation. Increased commodity prices, labor costs, changes in mining technology, or a national emergency may make marginal deposits economic to mine.
- Historical value. The Julian gold mining district is a visible reminder of a dramatic period in our local history. The area and remaining mines have economic value as tourist attractions. Some effort has already been expended to preserve the historic sites of the Julian area.
- Mineral collecting localities. Rock and mineral collecting is a significant form of outdoor recreation in the San Diego area. Generally, old mines and prospects are the best collecting localities. Many deposits are worth protecting for this reason alone. The gem mines of Pala, Rincon, Mesa Grande, and Ramona are among the best collecting localities in the United States.
- Unique geologic localities. Mineral deposits are, almost by definition, unique geological features. Every deposit illustrates some interesting detail of the earth's structure or chemistry. Thus, they are of interest to students, scientists, and the general public, as well as to mine operators.
- Points of interest. Mines and mineral deposits provide focal points of interest for the County's open space planning effort. An example is the old Stonewall mine in Cuyamaca State Park.

CONSTRUCTION QUALITY SAND

The San Diego County General Plan Land Use Element does not show extractive industries. The element text recommends:

"Before allocation for these uses can be made, further studies, some of which are already underway, must be completed. Upon completion of these studies, the Plan will be supplemented with an extractive industries element."

The Policies and Action Programs of this section will accomplish the above general plan recommendation.

A survey of this important natural resource entitled "River Sand Resource Study, San Diego County Environmental Development Agency" was completed in June, 1974.

The availability of construction quality sand for extraction is severely limited even though there is an ample supply in the major river basins of the County coastal plain. These limitations result primarily from community opposition to sand extraction.

Roughly two-thirds of available sand is in the San Luis Rey River in the North County Market area, and one-third is in the rivers of the Metropolitan Market Area (MMA) (see Table 1). As indicated in Figure 4, this area is considered to be south of, and including, the San Dieguito River and west of the Laguna Mountains. If all of the river sand in the MMA were recoverable, there would be no problem with supply of construction quality sand well beyond the foreseeable future.

Metropolitan Market Area supplies of construction quality sand under Special Use Permit will apparently be exhausted in the next few years. Total MMA sand resources could last until shortly after the turn of the century (30 to 40 years) if conservation measures are practiced and new permits can be obtained.

Table - 1
**TOTAL VOLUME OF CONSTRUCTION QUALITY SAND
BY RIVER BASIN**

(Volumes in Cubic Yards)

<u>Drainage Basin</u>	<u>Available</u>	<u>Total</u>	<u>Total Volume Concrete Sand</u>	<u>Percentage</u>
NORTH COUNTY MARKET AREA	234,836,000	391,081,000	233,454,000	31.2
San Luis Rey	234,836,000	391,081,000	233,454,000	31.2
METROPOLITAN SAN DIEGO MARKET AREA	116,914,000	626,787,000	488,079,000	59.8
Upper San Diego	23,151,000	145,298,000	116,724,000	15.6
Lower San Diego	7,233,000	64,814,000	26,547,000	3.5
Sweetwater	56,098,000	111,983,000	88,998,000	11.9
Tia Juana	4,499,000	18,653,000	8,651,000	1.1
San Dieguito	25,933,000	286,039,000	207,159,000	27.7
TOTAL	351,750,000	1,017,868,000	681,533,000	
Excess in Area Under Special Use Permit		68,381,000	65,302,000	8.7
TOTAL		1,086,249,000	746,835,000	99.7

Based upon the "River Sand Resources Study," the preliminary Lakeside Community Plan, and other studies by the sand extraction industry, the County is now in a position to adopt an overall strategy for the conservation of these sand resources.

A Phased General Plan Program. The adopted Open Space Element of the County General Plan proposes a three-phase plan and implementation program for the conservation and extraction of sand resources.

- Phase I has been accomplished by The "River Sand Resource Study," which establishes an information base and delineates the location and the quantity and quality of construction river sand in the major rivers of the coastal plain.

- The Conservation Element of the County General Plan will accomplish a portion of Phase II. The Conservation Element will, when adopted, constitute a public policy statement of the County's intention to insure the availability of an adequate supply of this vital resource.
- Phase III will include the preparation and adoption of regulating devices to be used in implementing the policies resulting from Phase II.

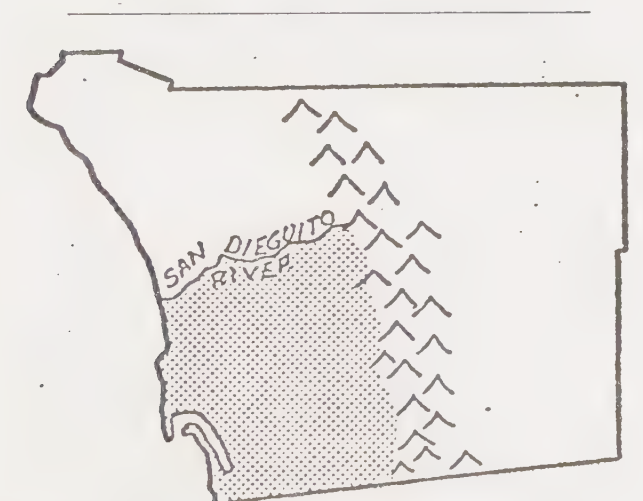
Other future studies, specific plans, and implementation may also be necessary to insure an adequate supply for immediate and long-term needs. Multi-disciplinary teams will be necessary for such studies. These teams will

need to include specialists in mineral extraction and processing, soils, grading, hydrology, water quality control, lake management, land use, traffic, noise control, fish and wildlife, soil erosion control, and others. The public would benefit from sand extraction and from the results of phased and progressive rehabilitation. The environmental, clean water, flood control, recreational, and scarce natural resource conservation aspects of such projects warrant the County's obtaining funding for a demonstration project. Properly planned extraction sites could result in recreational uses such as golf courses and these areas could include interesting topographic features and water areas.

FINDINGS

Finding 1 The total volume of construction quality sand in the major coastal river basins is over 681 million cubic yards.

Finding 2 Sizable deposits of construction quality sand exist within incorporated areas. The San Pasqual Valley within the City of San Diego contains a large quantity of construction sand which is relatively close to the rapidly growing northern portion of the Metropolitan Market Area. At the present time, the City is



METROPOLITAN SAN DIEGO MARKET AREA

Figure - 4

Table - 2

HAULING CHARGES AS OF SEPTEMBER, 1974

(Updated from the San Diego County
River Sand Resource Study)

River Basin	Production Area	Hauling Charge (in \$) Per Ton to Interstate-8 and State Route-163 (Metropolitan Market Area)
San Luis Rey	Pala	3.08
San Dieguito	Lake Hodges	1.59
	San Pasqual	1.86
San Diego	Lakeside	1.18
	Mission Valley	0.43
Sweetwater	Jamacha	1.23
	Dehesa	1.41
Otay	Otay	1.10
Tia Juana	San Ysidro	1.15

encouraging agricultural uses in the area and only permits excavation of a shallow flood control swale.

Finding 3 Construction quality sand can be produced by crushing larger material. Sand produced by crushing rock is more costly and produces a cement which is less fluid; however, where concrete of superior strength is required, artificial sand may be preferable. The use of natural sand is generally more desirable for both economic and technical reasons.

Finding 4 There are deposits of construction quality sand in the mountains and desert portions of the County. Where these deposits occur near highways or railroads, they may be of local or long-range importance to the extraction industry.

Finding 5 Hauling costs rule out transporting sand from northern or eastern areas of the County to the Metropolitan Market Area (MMA). A large portion of the cost of sand is attributable to transportation.

Table 2 represents hauling charges from selected production areas along major river basins to the Metropolitan Market Area. The intersection of State Highway 163 and Interstate 8 has been considered the center of the MMA.

Sand transportation from Pala in the San Luis Rey River to the center of the MMA will have a 41 percent higher cost than a ton of sand transported from the Lakeside area of the Upper San Diego River. Put in another way, nearly one-half of the delivered cost of a ton of sand from the Pala area to the center of the MMA would result from transportation cost, while transportation would account for only about one-fourth of the cost of a ton of sand delivered to the same location from the Lakeside area.

Finding 6 Availability of construction quality sand is becoming very limited. Although there is an adequate amount of this necessary mineral resource in the MMA, residents near the proposed extraction areas often object, for aesthetic and environmental reasons, to extraction. In recent years, extractors have not been able to obtain extraction permits. The County "River Sand Resource Study" has classified sand-bearing land as "Unavailable," "Questionably Available," and "Available." Lands in the "Available" category (assuming industry's ability to obtain extraction rights from the owners and to obtain Special Use Permits) are estimated to contain 351 million cubic yards of construction quality sand. About two-thirds of this amount is located in the San Luis Rey River in the North County Market Area, while the remaining one-third (116 million cubic yards) is in the MMA.

Finding 7 Sand presently available under existing permits is sufficient to supply the County's needs for only the next few years. See *Appendix E* As of September, 1974, 11.6 million cubic yards of construction quality sand were authorized for extraction in the MMA by Special Use Permit. The MMA has experienced a mean annual production rate of 1,481,000 cubic yards during the years 1969-1972.(53)

Finding 8 The total demand for the MMA to 1995 is estimated to be between

34 and 50 million cubic yards. See *Appendix E* The lower figure results from the projection of the mean annual production rates during the years 1969-1972. The higher figure results from the projection of the annual consumption rate of 1.5 cubic yards per person.(53)

Finding 9 The absence of long-range comprehensive planning for local extraction operations has resulted in a proliferation of shallow pits, inefficient utilization of sand resources, little or no rehabilitation of extraction sites, public health and safety hazards, urban encroachment into extraction areas and community objections to extraction operations. Current County practices limit sand extraction permits generally to a depth of 20 feet or less and normally to a duration of 5 years. The purpose of these practices is to prevent ponding, excessive erosion, and to allow frequent review of extractive operations. These practices have been used in lieu of an overall sand extraction management plan.

A review of these practices indicates mining should be permitted below the water table when environmental safeguards and site rehabilitation and reuse plans are provided.

Recently, representatives of the industry have assisted the County in preparing the "River Sand Resource Study." This study provides a valuable data base for future planning efforts.(53)

Finding 10 In recent years, considerable community opposition has developed to sand extraction and rock quarrying operations. Residents object to dust, noise, blasting vibrations, truck traffic, safety hazards, and unsightly scars on the land.

- Site rehabilitation generally has not been an integral part of sand extraction and rock quarrying

operations. Historically, excavated sites have been abandoned at the conclusion of extraction operations. These nonrehabilitated sites frequently result in scarred topography and potential safety hazards. Open pits often have steep walls and standing water. In some locations, sand pits have become mosquito breeding habitats.

- Groundwater flow may be impeded and increased erosion and siltation may result during times of flooding.
- Noise and dust may accompany sand extraction operations.
- Truck traffic is generally not compatible with residential areas.
- Extraction operations often result in the destruction of significant wildlife habitats. Sand deposits typically occur in river beds which support riparian or streamside habitats. These wildlife habitats constitute only 0.2 percent of the County's total land area. *See Vegetation and Wildlife Habitat Finding 31*

Finding 11 Obtaining a Special Use Permit is the procedure by which an extraction operation is approved by the County. This procedure allows application of certain conditions of approval and can provide for the periodic review of the permit.

Finding 12 Some aspects of sand extraction operations are regulated by the San Diego Regional Water Quality Control Board (RWQCB), the State of California Department of Fish and Game, the Air Pollution Control District (APCD), the California Department of Transportation (CalTrans), and other agencies. Sand extraction operations must obtain waste discharge requirements from the RWQCB. The RWQCB

often requires siltation basins which must be flood-proofed and sealed. Modification to stream beds requires review by the Department of Fish and Game. The APCD enforces emission standards for particulates and off-highway vehicles. CalTrans may require road modifications at points of ingress and egress to state highways.

Finding 13 A critical need exists for an overall strategy for selecting proper extraction sites, for promoting the wise utilization of sand resources, for ensuring the proper rehabilitation of mined areas, and to minimize hazards and conflicts with other land uses. An overall strategy for the conservation and management of this resource should be based on the wise utilization of existing deposits within the MMA. An adequate supply of construction quality river sand is a vital factor in the production of concrete and plaster products and is, therefore, important to the vitality of the region's economy.

Finding 14 The adequate supply of construction quality sand is a regional problem. The location of sand supplies is not determined by political boundaries. Policy coordination between the County and other jurisdictions having sand deposits should be achieved.

Finding 15 To be effectively implemented, sand extraction plans and programs must be economically and technologically feasible, as well as environmentally sensitive.

Time Duration. Duration of Special Use Permits for sand extraction should allow for the completion of the project, normal amortization of capital investment, and the optimum recovery per acre of the sand resource.

Sand resource extraction operations inherently require the expenditure of large amounts of capital for land acquisition, extraction and processing

machinery, off-site public improvements such as roads, site rehabilitation, fencing, and landscape screening and pollution prevention (air, water, noise) to make the operations less objectionable to nearby residents. For the operator to obtain and commit large amounts of capital, reasonable assurance that the operation will be permitted throughout the life of the deposit is a necessity and the total amount of capital required must be predictable.

Deep Mining. Resource excavation which incorporates environmental safeguards, site rehabilitation, and reuse is possible below the water table. The technology exists in the form of various types of diesel and electrically powered dredges (clam, ladder, hydraulic, and slack-line) and draglines to extract sand from depths of more than 200 feet.

The scientific knowledge and technological expertise exists to develop, enhance, and manage these resultant bodies of fresh water. Such lakes could be ecological and aesthetic assets to the surrounding area. When considering reuse of a given site for recreational purposes, numerous factors must be dealt with, including depth of deposit; elevation of water table relative to depth of deposit; water quantity, quality, and temperature; the discouragement of plant growth; and future land uses in proximity to the created lake.

When deep mining operations are involved, special attention must be given to protecting the water rights of water districts, utility companies, and property owners in these areas.

Rehabilitation. Rehabilitation and reuse plans must be based on long-range planning for recreation and residential uses, and provide for the protection of the riparian (streamside) habitat by reestablishing native plant species.

Finding 16 Within the MMA, three areas of the upper San Diego and Sweetwater River appear to be suitable for extraction. The three areas listed below are not the only suitable sites for sand extraction in the MMA. These areas should be priority areas for consideration because they appear to meet most of the criteria for suitable sand extraction operations.

As indicated by Appendix F, these three areas have certain advantages, but there are many other considerations. Before any decision can be made determining the appropriateness of these or any other areas, a complete analysis must be completed.

<u>Area</u>	<u>Volumes - Cu. Yards</u>
1. Upper Sweetwater River - between westerly edge of Cottonwood Golf Course and Highway-94 (Campo Rd.)	7 million
2. Upper San Diego River - County-owned Edgemoor Farm property in community of Santee	5.8 million
3. Upper San Diego River - portions of area designated on preliminary Lakeside Community Plan as Extractive Industrial	98 million
TOTAL	110.8 million

POLICIES AND ACTION PROGRAMS

POLICY 1 Within its authority, the County will use those management programs which conserve construction quality sand resources in the entire County to serve present and future demands.

POLICY 2 The County will regulate sand extraction activities to minimize hazards and conflicts with other land uses as well as to preserve and enhance the appearance of the area. The County will improve its review of sand extraction operations to insure that they comply with conditions of approval.

POLICY 3 The County will manage construction quality sand resources by initiating a program to:

Stage One Amend the County General Plan - 1990, Land Use Element, by designating resource conservation areas for the extraction of construction quality sand.

Stage Two Adopt a Specific Plan (as defined in Section 65450 of the Government Code - see Appendix J) for each resource conservation area.

Stage Three Use Special Use Permits to implement each Specific Plan.

General Plan Amendments

Stage One The County, with input from the sand extraction industry and other interested parties will determine conservation areas which are economically feasible and environmentally suitable for sand extraction. The future demand for the resource and areas available for extraction will be part of this analysis. When the County determines that an area is a potential resource conservation area, temporary overlay holding zoning will be applied to protect the area until a general plan amendment can be adopted or the County determines the area is unsuitable for sand extraction. Resource conservation areas should be of sufficient size to permit long-

term mining operations, adequate buffer zones, and progressive and complete site rehabilitation.

Land uses not compatible with sand extraction will not be permitted in designated resource conservation areas on the County General Plan - 1990, Land Use Element.

Specific Plans

Stage Two The County, with input from the extraction industry and other interested parties, will prepare and adopt a specific plan for each resource conservation area.

The plan will provide guidelines for the operation and rehabilitation of each area.

The specific plan, as a minimum, shall include:

- A land use plan for the area during sand mining operations. The plan will provide for identification of priority extraction areas within the study boundaries so that sand can be mined in a logical manner with a minimum of disruption to neighborhoods. The specific plan will help to assure an adequate economic return for those making the invest-

ment, and for the optimum use of the land once the sand has been extracted.

The specific plan will designate land uses compatible with extraction operations for the area covered by the plan.

- A circulation plan, developed in coordination with the Department of Transportation, to include truck traffic generated by the sand mining operation during the permit period.
- A hydrological study to determine the effect of sand extraction on the flow of the river and on groundwater conditions to minimize the adverse effects of such extractions.
- Provision for both short- and long-range water quality and quantity control.
- A rehabilitation and reuse plan for the sand extraction site.

Special Use Permits

Stage Three

The County will, through the public hearing process, implement specific plans by the issuance of Special Use Per-

mits. Special Use Permits will normally be approved only when the application conforms to an adopted specific plan and is judged to be appropriate on its own merits.

ACTION PROGRAMS

Action Program 3.1 Direct the Chief Administrative Officer (CAO) to undertake a feasibility study determining the appropriate procedures, methods and requirements for preparation of Specific Plans to implement Policy 3. This study shall include:

- The technical, environmental and legal basis for preparation of Specific Plans for extraction operations.
- The owner, extractor and public interest in the preparation of such Specific Plans.
- Determine appropriate cost-sharing methods between the County, the extraction industry, and others for preparation of Specific Plans.

Action Program 3.2 The Integrated Planning Office will undertake appropriate studies to determine the suitability of the following areas for sand extraction and will initiate public hearings to apply temporary overlay holding zones.

Designate these areas in the Pala area, upper San Diego and upper Sweetwater Rivers as potential resource conservation areas. *See Appendix F*

- The Pala area, currently containing two extraction areas.
- Portions of the upper Sweetwater River in Rancho San Diego between Cottonwood Golf Course and Highway 94 (Campo Road).

- Portions of upper San Diego River centered around the County owned Edgemoor Farms property. This area is in the Santee Community Planning area.
- Portions of the upper San Diego River designated on the preliminary Lakeside Community Plan for "Extractive Industrial."

Action Program 3.3 Prepare, with input from the extractive industry, a pilot Specific Plan for portions of the upper San Diego River designated on the preliminary Lakeside Community Plan for "Extractive Industrial." The east-west boundaries of the initial Specific Plan area should be approximately Highway 67 and Riverford Road, respectively. This Specific Plan may be prepared as part of the feasibility study prepared by the CAO or may be completed at the conclusion of the study.

Action Program 3.4 Direct the Office of Land Use and Environmental Regulation (LUER) to undertake a study to determine the suitability of uses allowed in existing temporary holding zones for application to potential resource conservation areas. If the existing temporary zones are not adequate to prohibit incompatible land uses, LUER shall prepare and submit to the Board of Supervisors appropriate amendments to the Zoning Ordinance.

POLICY 4 If Stages One and Two have not been completed, extension of existing Special Use Permits will be based upon the merits of each application. Approval of these permits shall conform to Policy 5, and meet the following requirements:

- The applicant shall provide all the necessary information requested by the County for the preparation of a specific plan.
- Upon adoption of a specific plan, the Special Use Permit will be

reviewed and the conditions of approval shall be brought into conformance with the specific plan.

POLICY 5 Special Use Permit conditions of approval will provide for optimum utilization of on-site sand resources, long-term permits, site rehabilitation and reuse, and minimal environmental disruption.

- Deep mining is encouraged to maximize the volume of sand removed per acre. Depths of excavations must be compatible with site conditions and the protection of adjacent properties.
- The duration of Special Use Permits will be sufficient to allow:
 - Completion of the project;
 - Amortization of capital investments required for operating expenses, equipment purchases, purchases of buffer zones, as necessary;
 - Completion of site rehabilitation.
- Each site must be rehabilitated in concert with the adopted specific plan. Progressive rehabilitation should be used when appropriate. Upon completion of extraction operations, the site must be left in a condition suitable for reuse according to the rehabilitation plan.
- To minimize environmental impacts, conditions of approval must include:
 - Landscaping and screening plans.
 - Controls for dust and noise pollution.

- Provisions to reduce the potential for off-site soil erosion and siltation.
- Provisions for flood protection.
- Protection of surface and groundwater rights of upstream and downstream property owners.
- Provisions for a wildlife and lake management program when appropriate.
- Provisions for abatement of potential truck traffic problems.
- Provision for trails designated in the General Plan.
- Provision for reduction of safety hazards associated with the "attractive nuisance" often created by extraction operations.
- Provisions for vector control.
- Extraction phasing plans.
- Soil disposal plans.
- Hours and days of operation.
- Any other conditions deemed necessary.

- Provision for the periodic, at least every five years, review of permit conditions of approval. This review will be for the determination of the adequacy of the conditions and to ensure the applicant is meeting the conditions.

COARSE AGGREGATE AND OTHER CONSTRUCTION MATERIAL

Mineral aggregate is essential for most types of construction as well as for

the maintenance of existing public utility structures and highways. The term "aggregate" refers to any one of several minerals that are used primarily for portland cement and asphaltic concrete filler. Sand and gravel are the principal materials used for aggregate, although crushed rock is also a very important source. Fine aggregates were discussed in the sand section.

Dimension stone (rock quarried or cut in accordance with required dimensions) is used primarily as decorative rock for monuments and building facing stones.

FINDINGS

Finding 17 Crushed and broken stone is an important aggregate material quarried in the County.(50) Coarse aggregate is used as road base, roofing granules, poultry grit and drain rock, while broken stone is used mainly as riprap.

- "Decomposed granite" is taken from a number of small pits primarily for use as a road base and asphaltic filler.
- Riprap consists of angular fragments, 1 pound to 20 tons each, which are blasted from crystalline rocks. This material is used for construction of dams, jetties, flood control projects and breakwaters. Demand for riprap fluctuates in response to major construction projects.
- Volcanic rocks, limestones, shales, gabbros and pegmatites are crushed for use as roofing granules, poultry grit, decorative stone, and road bases.
- Crushed volcanic rocks are used as coarse aggregate for bituminous concrete (asphalt).

Finding 18 Crystalline rocks are quarried for dimension stone.(50)

Production of crystalline rocks in the County has fluctuated greatly. Gabbros (black granite), quartz diorite (gray granite) and quartzite are blasted, slabbed and polished for use as monuments and building and facing stones.

Finding 19 Several dimension stone quarries are located in the County.(50)

Most of the quarries are no longer in operation. Twelve quarries have been operated in the Lakeside-Foster-Santee area, only one of which is still in operation. San Marcos gabbro (black granite) is quarried extensively in the Escondido area. Gabbro has been quarried from ten sites in the Vista-Pala area, La Cresta, Bernardo and the Grossmont-La Mesa areas have all been quarried for "black and gray granites."

Finding 20 Rock quarries are usually considered undesirable land uses near residential areas. Residents object to dust, noise, blasting vibrations, truck traffic, and unsightly scars on the land.

Finding 21 When residential communities develop near existing quarries, pressure is commonly exerted to close down the operation.

Finding 22 Rock quarries frequently result in scarred topography and are potential safety hazards. By their very nature quarries are often impossible to landscape. They are usually located on hillsides and have steep faces cut into bedrock. Open pits with steep walls are a safety hazard for people in the area.

Finding 23 A need exists for an overall strategy for selecting proper quarry sites, for promoting the wise utilization of rock resources, for ensuring the proper rehabilitation of mined areas, and to minimize hazards and conflicts with other land uses. An overall strategy for the conserva-

tion and management of rock resources should be based on the wise utilization of these deposits.

POLICIES AND ACTION PROGRAMS

POLICY 6 Within its authority, the County will use those management programs which conserve coarse aggregate and other construction material resources in the entire County to serve present and future demands.

Action Program 6.1 Formulate an overall strategy for regulation of quarrying operations, preservation of resource areas, and site rehabilitation.

POLICY 7 The County will regulate quarrying activities to minimize hazards and conflicts with other land uses as well as to preserve and enhance the appearance of the area.

Action Program 7.1 Delineate the location, size, resource potential, and land use conflicts with existing or potential quarry sites.

Action Program 7.2 Prepare regulatory devices to implement the policies contained in the overall strategy formulated from Action Program 6.1.

OTHER MINERALS

Mineral deposits are metallic or nonmetallic. Metallic deposits are those having minerals with the luster of a metal such as gold, copper or iron. Non-metallic deposits include all of the construction materials discussed in the two previous sections as well as gem minerals, evaporites (salt) and rare earths.

The principal metallic commodities mined in the County are gold, tungsten and copper; however, total production of these has been small. Approximately 6 million dollars worth of gold was produced from 1870 to 1875 and from the late 1880's to 1900. Tungsten was

mined during World War II and during the early 1950's. Copper was produced mainly during World War I. Gem minerals were actively mined between 1900 and 1912; recently many of these mines have been reopened. Salt has been produced by evaporation in San Diego Bay since 1869.(50)

FINDINGS

Finding 24 San Diego County has an exceptionally wide variety of mineral deposits. Approximately 425 mines, claims, and claim groups have been located.(50) Of these 203 are metals and 222 are nonmetals.

Metals	No. of Deposits	Non-Metals	No. of Deposits
Copper	7	Clay	21
Gold	130	Feldspar	23
Iron	4	Gems	29
Lead	2	Graphite	3
Manganese	19	Gypsum	2
Molybdenum	6	Limestone and dolomite	15
Tungsten	26	Magnesium	1
Uranium and thorium	5	Obicular gabbro	15
Misc. including beryllium, nickel, and tin	4	Prophyllite	5
	<u>203</u>	Quartz and quartzite	17
		Salt	5
		Sand and gravel	50
		Specialty sands	3
		Wollastonite	2
		Misc. including abrasives, boron, calcite, lithium, etc.	17
			<u>222</u>

Finding 25 Presently there is little serious mining of metals in San Diego County. Most metaliferous deposits not previously mined are either too small or of too low grade to be economically mined at this time.

Finding 26 There is extensive extraction of nonmetals in the County. The following commodities are being commercially extracted(50,54):

- Brick clay near San Diego
- Gabbro "Black Granite" near Escondido and Lakeside
- Silica sand near Oceanside

- Adobe for bricks near Escondido
- Salt from south San Diego Bay
- Sand and gravel at numerous locations

Finding 27 San Diego County contains some of the most interesting and important gem deposits in the nation.(50,55 56) Gems are found in pegmatite dikes in the Pala, Mesa Grande, Ramona, Rincon, Chihuahua Valley and Jacumba districts. Production consists of tourmaline, spodumene, beryl, topaz, garnet and quartz. Some material is cut as gems, but most is sold as specimens for collectors.

Finding 28 Many mineral deposits which can not presently be mined economically have high scientific, educational and recreational values. These deposits are of historical interest and are used extensively as collection localities. For example the dumortierite deposit near Alpine is one of the few places that mineral can be found in the nation.(57)

Finding 29 50,000 to 100,000 tons of salt are produced annually from salt ponds at the south end of San Diego Bay.(50) In addition to their industrial value, the salt ponds provide open space and habitat for shore birds. (The salt works is a point of scenic interest. The salt ponds are not within the unincorporated area of the County but are of regional significance.)

Finding 30 In the County, most of the land under the jurisdiction of the United States Forest Service, United States Bureau of Land Management and the California Department of Parks and Recreation is open to mining claims. Claim holders are entitled to certain rights as to grading, timber, and water. There are now adequate safeguards to prevent staking of fraudulent claims for residential or recreational use.(58)

Finding 31 Prospecting or location of claims on Indian lands requires formal permission from the particular tribe. Some of the gem mines are on private holdings within Indian reservations.

POLICIES AND ACTION PROGRAMS

POLICY 8 The County will, to the extent practical, protect and preserve mineral deposits and historical mining sites available for necessary commercial extraction, and for scientific, educational and recreational uses.

Action Program 8.1 Initiate a mapping program to identify historical mining sites, high quality mineral collection localities, areas of unique mineralogical associations and areas of potential economic significance. Upon completion of the mapping program LUER will prepare appropriate policies and ordinances to ensure that these sites are not damaged, destroyed or illegally exploited.

UNIQUE GEOLOGICAL FEATURES

One of San Diego County's major assets is the three distinctive geographic provinces. These provinces from west to east are the Coastal Plain, Interior Upland of Ranges and Valleys (Peninsular Range Province), and the Salton (Imperial) Basin. Each province has a particular association of climate, topography, flora and fauna, and geologic setting. Within each province there are geologic features which are not only different from those found in the other provinces but are unique to their own province. In many cases these features are unique to California and the rest of the nation.

What makes a geologic feature unique varies considerably. A unique feature may be the best example of its kind locally or regionally, it may illustrate a geologic principle, it may provide a key piece of geologic informa-

tion, it may be the "type locality" of a fossil or formation, or it may have high aesthetic appeal. Unique geologic features may be exposed or created from natural weathering and erosion processes or from man-made excavations.

Saving all unique geologic features is impossible because they are often very small or very large, are widely scattered or are on private property.

FINDINGS

Finding 32 The Natural Resources Inventory (NRI) of San Diego County identified 67 unique geologic features. (54) This preliminary list (*see Appendix G*) includes stratigraphic formations, igneous rocks, fossil locations, and structural features. Many unique features such as mima mounds, migmatites, and exposures of the Sweetwater and La Nacion faults are not included in the NRI.

Finding 33 The County does not have an active program for the identification and preservation of unique geologic features.

POLICIES AND ACTION PROGRAMS

POLICY 9 The County will, to the extent practical, protect and preserve unique geological features from destruction, damage or loss.

Action Program 9.1 Initiate a mapping program to identify unique geological features. These features will include stratigraphic formations, igneous rocks, plant and animal fossil locations, and structural land geomorphic features. Upon completion of the mapping program LUER will prepare appropriate policies and ordinances to protect these features.

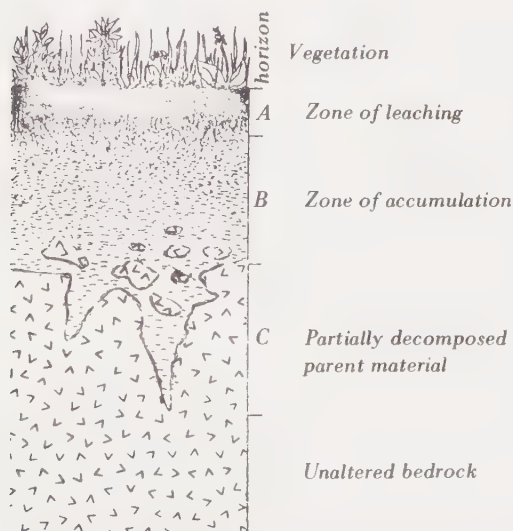
Action Program 9.2 Initiate a program to designate littoral sand resource conservation areas. The Integrated Planning Office will propose policies and ordinances for the management of these areas.

Chapter 6

Soil

Soils may be defined as that earth material which has been so modified and acted upon by physical, chemical, and biological agents that it will support rooted plants. The County Grading Ordinance defines soil as all earth material of whatever origin that overlies bedrock and may include the decomposed zone of bedrock which can be excavated readily by mechanical equipment.

The word soil has different meanings for various disciplines. The geologist and geographer generally consider soil as a succession of zones or horizons developed in place from bedrock (solid rock) by naturally occurring weathering processes, including leaching and oxidation, and which support life. *See Figure 5* Soil may have been transported by wind or water and this process may substantially alter its characteristics.



The three major horizons of a soil. In many places it is possible to subdivide the zones themselves. Here the soil is shown as having developed from granite rock.

THREE SOIL HORIZONS

Figure - 5

The suitability of soil for urban and agricultural purposes must be carefully evaluated as one vital component for the proper management of land use and the conservation of resources. The natural processes which form a soil profile from bedrock may require thousands of years and the entire profile may be removed and destroyed by erosion within a few hours. Soil engineers and engineering geologists are generally concerned with the mechanical properties of the soil profile and the underlying bedrock. They are particularly concerned with those mechanical properties which affect the design of highways and foundations. A soil report may include a discussion of shrink-swell characteristics, shearing strength, landslide potential, faulting, subsidence, compaction, erosion potential and a general description of geologic features of the site.

Soil is an irreplaceable natural resource requiring special attention for proper utilization.

AGRICULTURE

The topic of agricultural soil is complex. The physical properties of soil are not necessarily the principal factor determining the agricultural suitability of a particular area. Climatic conditions, water availability, drainage, taxes and land development pressures are equally important.

Although a detailed discussion of agriculture is not within the scope of the Conservation Element, the factors listed above are briefly discussed.

FINDINGS

Finding 1 The United States Department of Agriculture, Soil Conservation Service and Forest Service has published the "Soil Survey, San Diego Area, California."(59) This survey lists probable soil suitability for five high-value crops and includes other interpretive data. This information can be used as a partial guide by the public and government for general indications as to the type of soil and its expected performance.

Many crops grown in the County do not require high quality soils as defined in the Soil Survey.

The San Diego County Planning Department has prepared greatly expanded versions of interpretive data within this report.

Finding 2 Climate, drainage and water availability are the most important factors determining the agricultural suitability of many areas. For example, flower production is dependent on the coastal climate and avocados may be grown on poor soils as long as there is adequate drainage. Other crops such as winter tomatoes and cauliflower are economically viable because they may be grown in the County in the off season.

Finding 3 The San Diego County Planning Department estimates that approximately fifty percent of the undeveloped land within the coastal plain is classified as "usable agricultural soil" by the Soil Survey.

Finding 4 The Williamson Act enables local governments to contract with landowners to keep their land in agricultural and open space uses. Administering the Williamson Act requires setting up agricultural preserves. The preserves are limited to agricultural and compatible uses, as defined by the local legislature. According to San Diego County Planning Department records, as of July 1974 a

total of 38 agricultural preserves had been designated encompassing 380,761 acres. One hundred and thirty-two contracts within these preserves have been signed committing 106,301 acres to agricultural use.

POLICIES AND ACTION PROGRAMS

POLICY 1 The annual status of the environment report shall include an inventory of areas having a high agricultural potential. The inventory shall consider the relationship between climate, drainage, water availability and soil type. The report shall also estimate the amount and type of gain and loss of these lands within the reporting period.

Action Program 1.1 Direct the Community Services Agency and Integrated Planning Office to establish a program to determine the annual gain and loss of agricultural land for each of the County's major crops.

POLICY 2 The County General Plan will be amended to include an Agriculture Element which will consider all aspects of the agriculture industry and will designate exclusive agriculture areas.

Action Program 2.1 Direct the Integrated Planning Office, in cooperation with the County and United States Departments of Agriculture, to prepare an Agriculture Element of the San Diego County General Plan.

POLICY 3 The County will analyze, improve and promote methods for preserving agriculture.

Action Program 3.1 Publicize the wildlife habitat preserve provisions of the Williamson Act and other open space laws. The Office of Public Information Services and the Office of Land Use and Environmental Regulation will publicize program benefits. *Same as Vegetation and Wildlife Habitat Action Program 1.3*

Action Program 3.2 Direct the County Chief Administrative Officer to propose agency responsibilities for the annual review of the effectiveness of the agricultural preserve program including State subvention monies. Agency review should include changes in the tax base, surrounding development and public services, changes in the percentage of land under contract in each preserve, as well as analyze changing economic and environmental conditions which may require the possible expansion or contraction of boundaries.

POLICY 4 County agencies involved in the preparation or review of environmental impact reports shall refer to the United States Department of Agriculture "Soil Survey" if more detailed data and maps are not available. Although this Survey may appropriately be used only as a guide, it will be specifically considered as one component of project review.

EROSION CONTROL AND HILLSIDE PROTECTION MANAGEMENT

FINDINGS

Finding 5 To minimize slide danger, erosion, and siltation, a grading permit must be obtained for all but the following projects:

- An excavation which is less than five feet (5') in vertical depth at its deepest point and which does not result in the movement of more than 200 cubic yards of material on any one lot or parcel.
- A fill which is less than five feet (5') in vertical depth at its deepest point; is placed on a surface having a natural gradient less than 20 percent (20%) (twenty (20) feet of vertical distance measured from the natural ground surface for each one hundred (100) feet of horizontal distance); does not exceed 200 cubic yards of material on any one lot or parcel;

and does not change the existing drainage pattern for an off-site area either above or below the grading site.(60)

Finding 6 The County Grading Ordinance provides for:

- Slope stability by limiting the angle of cut or fill.
- Erosion control by requiring planting in most cases.
- Plant maintenance capability by requiring irrigation systems in most cases.
- Building stability by requiring the removal of expansive soil.(60)

Finding 7 The Grading Ordinance does not evaluate the environmental appropriateness of a proposed grading operation. The ordinance provides for referral of some projects to the Environmental Review Board (ERB) to determine whether the project could have a significant effect on the environment.

Finding 8 If the ERB determines that a project could have a significant environmental effect, an Environmental Impact Report (EIR) must be prepared.(61) When the ERB adopts the EIR, it is submitted to the County Engineer who must recommend to the Board of Supervisors any specific conditions that could minimize the adverse impacts of the project.

Finding 9 The County must (pursuant to Section 11549.5 of the Business and Professions Code) deny any final or tentative subdivision map if(62):

- The project site is not physically suitable for the proposed development.
- The site is not physically suitable for the proposed density of development.

The County does not have standard criteria to make these determinations.

Finding 10 The County is currently preparing hillside protection and management policies.

Finding 11 There are five recognized landslide areas in San Diego County: Rancho Bernardo-Poway, Santee-Fletcher Hills, San Ysidro-Otay, and limited areas within the Coastal and Peninsular Mountain Range.(63)

Grading operations in such landslide areas have resulted in slope failures and structural damage. In some cases slope stability may be increased by providing buttresses.

Finding 12 Cut and fill banks containing expansive soils at finished grade are subject to superficial landsliding.

Although major landsliding will not normally result from placement of such expansive soils at finished grades on cut and fill banks, significant expenditures to prevent superficial landsliding may be required.

POLICIES AND ACTION PROGRAMS

POLICY 5 The County will utilize existing and evolving geologic, geophysical and engineering knowledge to distinguish and delineate those areas which are particularly susceptible to damage from geologic phenomena. Similar to Policy 2 - Seismic Safety Element

Action Program 5.1 Initiate a study to identify the landslide- and liquefaction-prone soils in the unincorporated areas. The study shall make recommendations to amend the appropriate land development ordinances. As a minimum, the County shall amend Ordinance 4260, Section 302d to require soil or geotechnical reports within the delineated areas. *Similar to Action Program 2.5 - Seismic Safety Element*

Action Program 5.2 The County will evaluate land use categories for potential designation as landslide and liquefaction prone areas.

FINDINGS

Finding 13 Existing County ordinances prohibit the use of expansive soils at finished grades in areas designed for location of buildings.

To minimize the possibility of damage of foundations and slabs, expansive soil must be removed to a depth of two feet on cut lots and be replaced with nonexpansive soil, and on fill lots expansive soil must not be placed within three feet of finished grade. Where expansive soil cannot be avoided at finished grade, special foundations are required.

Finding 14 State law requires, upon the request of the buyer, the seller of new housing to supply the prospective buyer with a soils report. These reports are difficult for laymen to interpret.

Finding 15 Clearing of natural vegetation for agricultural use results in a modification of the watershed and increases soil erosion and siltation. Presently no environmental analysis or reporting procedures exist for any clearing.

Finding 16 San Diego County has a Coastal Development Zone which regulates the distance structures may be placed from the bluff line. There is concern that variances to setback regulations will contribute to bluff stability problems.

Finding 17 When a project is designed in concert with natural terrain features, significant environmental impacts can be minimized. Some current design standards encourage the modification rather than the preservation of natural landforms. Development pressures are threatening unique and

aesthetically pleasing natural terrain features. These unique features which add charm and beauty to the region include shorelines, bluffs, cliffs, canyons, mountain peaks, major rock outcroppings, alpine meadows, and stream channels. Intensive development often destroys the natural beauty of these features.

Finding 18 Open Space Easements preserve open space by the owner relinquishing his right to develop on the subject land. Such easements may be granted in areas both inside and outside agricultural preserves upon specific findings by the Board of Supervisors that the easement would result in benefit to the public. According to San Diego County Planning Department records, as of March 1, 1973, four Open Space Easements encompassing 1,339 acres had been granted to the County. This figure does not include land in Open Space Easements required as a condition of Planned Residential Developments.

Finding 19 Soil disturbance due to off-road vehicle (ORV) activity is a serious problem particularly near population centers. Of the three major ORV types (motorcycles, dune buggies, and four-wheel drive vehicles), motorcycles are responsible for most of the significant soil erosion.

Finding 20 Control of most unrestricted motorcycle activity near the population centers will continue to be difficult unless conveniently located motorcycle parks are established. At the present time, no motorcycle parks operate on a daily basis near the centers of population in San Diego County.

Finding 21 An ORV subcommittee has been meeting for three years to work out solutions to the previously mentioned problems.

Finding 22 Inclusion of an ORV Element of the County General Plan is

one alternative being considered at this time.

POLICIES AND ACTION PROGRAMS

POLICY 6 The County will seek to preserve natural terrain features through the adoption of appropriate guidelines and regulations.

Action Program 6.1 Review, and revise where necessary, the County guidelines and regulations which will best implement Policy 6.

POLICY 7 The County recognizes the need to assess the physical suitability of a project site for both the proposed use and proposed density.

Action Program 7.1 Initiate a program to formulate standard criteria by which to assess the physical suitability of a project site for both the proposed use and proposed density.

POLICY 8 The County will seek to implement a grading ordinance which will protect public health and safety, protect property, and conserve the visual character of the land.

Action Program 8.1 Staff will evaluate the grading ordinance to assure that it is accomplishing the above objectives.

POLICY 9 The County will seek to protect coastal bluffs through the adoption of guidelines and regulations to include provisions for:

- Setbacks from the bluff top which will not require protection, now or in the future, for structures, patios, and walks.
- Protection measures for existing developments which will not extend more than one foot seaward of the bluff toe.
- Adequate public beach access to prevent erosion of the bluffs caused by random beach access.

- Planting on the bluffs.

Action Program 9.1 Review, and revise where necessary, the County guidelines and regulations which will best implement Policy 9.

POLICY 10 To prevent erosion and slippage in man-made slopes, approved low maintenance trees, bushes and grasses which establish themselves quickly should be planted.

Action Program 10.1 Amend the County Engineer's approved plant list to include desirable native plants. Recommended plants will be correlated with soil, drainage and climatic conditions.

Action Program 10.2 Revise the County Grading Ordinance to require maintenance of newly planted slopes until the groundcover is established.

Action Program 10.3 Revise the County Grading Ordinance to encourage drip irrigation and require where practicable.

POLICY 11 The County will regulate major land clearing projects to minimize significant soil erosion, destruction of archaeological, historic and scientific resources and endangered species of plants and animals. Same as Policy 16 in Vegetation and Wildlife Habitat

Action Program 11.1 Direct the Community Services Agency to prepare a land clearance ordinance in conjunction with other appropriate agencies. This ordinance will establish a discretionary permit procedure. The ordinance should include:

- Minimum project size requiring a permit.
- Standards for evaluating permits.
- Mitigating measures.
- Exemptions.

- Appeal procedures.
- Enforcement procedures.

Action Program 11.2 Revise the Grading Ordinance to more clearly define "agricultural" grading.

POLICY 12 San Diego County shall investigate the establishment of public ORV parks and encourage private off-road vehicle parks in appropriate locations. Same as Vegetation and Wildlife Habitat Policy 10

Action Program 12.1 Direct the Sheriff's Department to give greater emphasis to the enforcement of trespassing laws on properly posted property to prevent uncontrolled scarring and erosion.

Action Program 12.2 Direct the Community Services Agency and the Park and Recreation Department to lend assistance to interested private parties wishing to operate motorcycle parks.

Action Program 12.3 Direct the Park and Recreation Department to study acquisition and operation of off-road vehicle parks. High consideration should be given to motorcycle parks particularly near population centers.

Action Program 12.4 Initiate a program to establish off-road vehicle control zones where the use of off-road vehicles is limited or eliminated due to soils sensitive to erosion. *See Cultural Sites Action Program 1.3*

Action Program 12.5 Seek sources of financial aide for operation of off-road vehicle parks, such as licensing fees.

Action Program 12.6 Initiate an off-road vehicle educational program.

POLICY 13 Soils and geology reports, as required by State or County regulations, when made available to the public, shall have a layman's summary. It shall include:

- Hazardous or potentially hazardous conditions;
- Recommendation to mitigate, or partially mitigate, hazardous conditions; and
- Suggested maintenance and land management procedures subsequent owners should follow.

Action Program 13.1 Revise appropriate ordinances to implement Policy 13.

Chapter 7

Astronomical Dark Sky

Astronomical research has contributed greatly to knowledge of nuclear fusion, sun radiation, and techniques of space travel. Continued studies could very well lead to increased energy production, thus helping to solve an imminent energy crisis. Astronomical research is also contributing to successful space programs, improving communications systems such as radio, and improving the accuracy of weather prediction. It is not reasonable or possible to "turn the lights out" or provide a totally dark sky simply to further astronomical research, but all efforts should be made to minimize this light pollution. Most research can continue only if the light of the surrounding area is not magnified significantly.

FINDINGS

Finding 1 Optical astronomy remains the basic field of research, although astronomy has reached beyond the visual spectrum to radio astronomy, study of quasars, cosmic rays, and other energy sources.

Finding 2 There are only six high-quality astronomical research sites in the entire United States. The criteria for a good site are(64):

- Elevation over 5000 feet above sea level, but not above 9000 feet.

A high elevation is necessary to reduce atmospheric light scattering. Very high mountains are of diminished value because of increased cloudiness and snow-falls.

- Clear, cloud-free night sky.

Mt. Palomar and Mt. Laguna are the nation's best mountain sites in this respect with an average of 6.4 cloud-free hours per night.

- Proximity to the Pacific Ocean.

The prevailing on-shore winds bring in relatively dust-free air, free of turbulence, resulting in a steady star image.

- Distance from urban areas.

The site must be far enough from large lighted areas, generally 30-40 miles, so that the sky over the observatory will not be brightened appreciably. (The 200" mirror on the Palomar Observatory is strong enough to detect the striking of a match at a point as far away as San Francisco.)

- Freedom from nearby sources of light, dust, and smoke.

A light source one mile distant has 1,600 times the impact on an observatory as an equivalent light at 40 miles distance. Smoke and dust, even in extremely small amounts, are also highly detrimental to observatories.

Finding 3 Sites meeting these criteria are found only in West Texas, Central New Mexico, Arizona, the Central California Coast, and in San Diego County, of which San Diego County is the best.

Finding 4 Mt. Palomar, operated by California Institute of Technology, and Mt. Laguna, operated by California State University--San Diego, represent a major capital investment exceeding \$31,000,000. The payroll associated with these observatories adds to the County's economic base. They are also important tourist attractions. Mt. Palomar, particularly, is world-famous and is visited by over 250,000 people annually.

Finding 5 Light and air pollution are the chief threats to astronomical research in this nation. Not only have our metropolitan areas grown in population, but with greater prosperity has come increased consumption of energy, particularly for electric lights and motor vehicle fuels. The effect of one is compounded by interaction with the other, i.e., the increased smog, dust, and haze diffuse and affect the increased light, brightening the sky at higher altitudes and greater distances.

Finding 6 Light pollution is cumulative in that the sky brightness that already exists is increased by each new source. It is incorrect to say that a little additional light will be lost in the glow that presently exists -- it will simply add to it.

Finding 7 Formerly, Mt. Hamilton and Mt. Wilson were outstanding sites, but the lights of the San Francisco Bay area and Los Angeles, respectively, have rendered them virtually useless.

Finding 8 The City of Tucson and Pima County, Arizona, have enacted light control ordinances to reduce the adverse effects of scattered and wasted light on local astronomical observatories. These light control ordinances are effective and have resulted in minimal economic hardships.

Finding 9 Cleveland National Forest personnel and other interested parties are completing the Palomar Mountain Study. This study will become the National Forest Overall Plan for the Palomar Area.

POLICIES AND ACTION PROGRAMS

POLICY 1 The County of San Diego will act to minimize the impact of development on the useful life of the observatories.

Action Program 1.1 The Board of Supervisors will appoint a task force of experts in the astronomical field and interested citizens to assist the County in development of regulatory devices associated with the dark sky conservation areas.

Action Program 1.2 Amend appropriate ordinances to control sources of light that adversely affect Palomar and Mount Laguna Observatories.

Action Program 1.3 Initiate a program to establish astronomical dark sky conservation areas around Palomar and Mount Laguna Observatories.

Action Program 1.4 Initiate a program to review those portions of the Circulation Element which show roads within five miles of an observatory. Determine if:

- future roads can be eliminated or realigned farther away from an observatory;
- plantings, screening or other devices are necessary to reduce headlight glare; and
- the mandatory use of low beams may be appropriate.

Chapter 8

Cultural Sites

Modern archaeology is a subdiscipline of anthropology, a field that seeks to study man in his various aspects. Archaeology differs from most anthropology in that the former studies "dead cultural systems." Subtle clues to prehistoric activity patterns, forms of organization, and environmental exploitation take on the form of sites (locations of past activities). On the other hand, anthropology studies living systems and tends to ignore the subtle clues of location and waste debris. Archaeology uses anthropological records and clues from dead systems to reconstruct the anthropology of the dead.

In San Diego County most archaeological work can be separated into three distinct sections: prehistoric, protohistoric, and historic. All prehistoric archaeology deals with aboriginal culture and systems which existed prior to Spanish colonization in 1769. There was no written language in San Diego County before that time. The social and oral systems were far more complex in order to compensate for the lack of written laws. Archaeologists attempt to delineate and describe these otherwise unrecorded aspects of California heritage. Protohistoric archaeology deals with the remains of aboriginal cultural systems which continued to exist after historic contact, but did not assimilate the technology associated with writing systems. Historical documentation by outside sources (i.e., Spanish) is considered ethnographic anthropological reporting. Historical archaeology deals with uncovering facts that no known historical documentation has provided.

A hundred years ago, when paper was more costly and printing processes less mechanized, much went unrecorded and information that can supplement our written history still lies in the ground awaiting an archaeological interest.

Archaeology can serve many purposes: it can reveal the local history of a people and of mankind; it can enrich America's proud heritage; it can contribute to better understanding of the present; and it can be used to test scientifically stated hypotheses about human behavior. Reconstruction of prehistoric cultural systems as links in greater biotic systems from an historical perspective can tell a great deal about existing and future systems. Conservation of these archaeological cultural systems is encouraged in San Diego County.

FINDINGS

Finding 1 It is State policy to "conduct a study of the state's total effort to preserve and salvage the archaeological, paleontological, and historic resources of the state." (Public Resources Code, Section 1, Chapter 1.75, Paragraph 5097.91)

Finding 2 San Diego County contains the physical remains of three general horizons for the prehistoric archaeological period, and three general divisions of the historic period. These are described in various scientific publications on the cultural history of San Diego County.

CULTURE

OCCUPATION PERIOD

Paleo Indian (San Dieguito)	12,000-8,500 years before the present
La Jollan	7,500-1,000 years before the present
Kumeyaay	1,000 years ago to 1769
Spanish	1769-1834
Mexican	1834-1850
American	1850-present

Finding 3 A number of San Diego County archaeological and historical sites have been identified as being of national, statewide, and local significance. See National Register of Historic Places, the California History Plan, the Natural Resource Inventory for San Diego County, and the State Historic Resources Inventory.

Finding 4 In the coastal plain and foothills, modification of the land for agriculture, heavy recreational, and urban uses has caused significant disturbance of cultural resources.

Finding 5 It is estimated that only 5% of the existing archaeological and historical resources have been identified in San Diego County as of 1973. (65)

Finding 6 Archaeological and historical sites of the coastal and foothill regions are in need of identification and immediate conservation measures for those sites of significance because of rapid urban development.

Finding 7 San Diego County has lost 36% of its projected total archaeological sites within the past 100 years. (65) The loss has resulted primarily from urban development and vandalism. Conservation efforts in these areas have been hampered by inadequate land use controls and

ineffective cultural resources legislation and enforcement.

Finding 8 Certain physical areas are more likely to contain evidence of man's past than others. Included among these are streamsides, particular vegetative areas (such as areas where oak trees occur), and flat mesas or terraces which were utilized by Paleo Indian people. Quite often, both streamside areas and flat mesa tops are favored for urban development. As a result, numerous archaeological and historical sites are unknowingly being destroyed.

Finding 9 Archaeological and historical sites, once destroyed or damaged, can never be replaced. An adequate evaluation by a qualified person has to be made of individual archaeological and historical sites prior to any urban development which will significantly alter the land.

Finding 10 Representative examples of each cultural period must be conserved to preserve a portion of man's cultural history. Certain sites increase in importance when they are locally endangered.

Finding 11 There is no coordinated effort to inventory, assess, and plan for the conservation of unique or significant examples of man's cultural heritage in San Diego County.

Finding 12 Vegetation removal is not presently subject to the environmental review process. It often involves inadvertent disturbance of cultural resources. There is no method for monitoring its effects. Vegetation removal is one of the most destructive human actions upon our cultural resources. (Agriculture is exempt.) See Vegetation and Wildlife Habitat Finding 20

Finding 13 Scientific study by local academic institutions can provide valuable information for decisions affecting cultural resources.

Finding 14 Vandalism is a form of loss of cultural resources not adequately controlled in San Diego County.

Finding 15 Various Federal, State, and local guidelines are available for the protection of archaeological and historical resources. Among these are:

- California Resources Code, Ch. 1.7, Sec. 5097.5;
- California Administration Code, Title 14, Sec. 4307 & 4309;
- California Penal Code, Title 14, Pt. 1, Section 622-1/2;
- California Senate Concurrent Resolution #43, Ch. 87;
- U.S. Act for the Preservation of American Antiquities (1906);
- U.S. Historical Sites Act (1966);
- National Environmental Policy Act (NEPA - 1969);
- California Environmental Quality Act (CEQA - 1970); and
- U.S. Act for the Preservation of Historical and Archaeological Data (74 Stat. 220, 1974).

Unfortunately, the majority of these laws apply to public land only; no provision, other than Title 14 of the California Penal Code, is made to protect cultural resources on private lands.

Finding 16 There is no centralized agency containing data relevant to San Diego County cultural resources. Various agencies, such as the San Diego Museum of Man, the Anthropology Laboratory at San Diego State University, the University of San Diego,

and several Junior Colleges (Mesa, Southwestern, Palomar, and Grossmont) contain data relevant to San Diego County prehistory. Organizations such as the Archaeological Fellowship of San Diego State University and the San Diego County Archaeological Society, as well as historical societies, all have data concerning cultural resources. Several libraries also contain valuable bibliographic literature relevant to San Diego County's cultural heritage. However, no effort to coordinate the data from these various sources has ever been made. The continuing involvement of San Diego County in archaeological resource management and the mounting data reserve from such activities are strong indicators of the growing need for County level curatorial and managerial leadership.

Finding 17 The misuse of off-road vehicles (ORV) is a contributing factor to the destruction of our cultural heritage in San Diego County. Late in 1972 a Southern California ORV club held a cross-country race on Federal and private land. As a result, many archaeological sites were destroyed prior to any assessment of the value by competent archaeologists.

Finding 18 Graves and cemeteries of our prehistoric ancestors have been disturbed and damaged numerous times in the past. These features are protected by State law, but have nevertheless been disturbed by various actions. Six or more bodies buried at one place constitute a cemetery, even if the graveyard is not public. (California Health and Safety Code, Sec. 8100). A felony is committed by a person(s) who knowingly disturbs human remains (Sec. 7052).

POLICIES AND ACTION PROGRAMS

POLICY 1 The County shall take those actions which will seek to conserve and protect significant cultural resources. These actions may include land purchases, land use controls such

as zoning, purchase at less than fee, ordinances prohibiting unqualified archaeologists or vandals from excavating or defacing such resources, dedication of open space around cultural resources, and the formation of cultural areas to protect those fragile resources.

Action Program 1.1 Initiate a program to establish cultural resource conservation areas to conserve and protect our cultural heritage. The Integrated Planning Office will designate areas which are: areas of high archaeological or historical potential, areas of known cultural significance, and areas necessary for the protection and conservation of cultural resources.

Action Program 1.2 Initiate the establishment of a centralized data repository within the Community Services Agency (CSA) for the storage of records of cultural resources, pertinent bibliographic references, and insure the curation of artifacts and records for public review. This would be established for use by qualified researchers only.

Action Program 1.3 Initiate a program to establish off-road vehicle control zones where the use of off-road vehicles is limited or eliminated from sensitive cultural resource areas.
See Soil Action Program 12.4

Action Program 1.4 The annual status of the environment report shall include an inventory and assessment of significant archaeological and historical sites, structures, etc., within San Diego County. This report shall discuss the disposition of records and resources recovered through County policies and curated for California posterity in accordance with CEQA.

Action Program 1.5 Discourage vandalism of cultural resources and excavation by persons other than qualified archaeologists. The County shall study the feasibility of implementing policies

and enacting ordinances toward the protection of cultural resources such as can be found in California Penal Code, Title 14, Point 1, Section 622-1/2.

Action Program 1.6 Study the implementation of a policy toward protection of cultural resources not only on public, but also on private land.

Action Program 1.7 Initiate a cultural resource education program.

Action Program 1.8 Initiate a program to establish policy for the protection of graves, cemeteries, and human skeletal remains of both our prehistoric and historic ancestors; and also, prohibit the sale of any human remains or artifacts from cemeteries. This policy shall reflect the California Health and Safety Code, Sections 8100 and 7052.

This policy shall be formulated in conjunction with County archaeological personnel, professional archaeologists, institutions with archaeological and historical programs, and local representatives of our native Indian population.

POLICY 2 Conservation of cultural resources shall be given a high priority in County park acquisition and development programs. The curation and display of recovered resources shall be developed for public education.

Action Program 2.1 Prepare detailed guidelines for cultural resource conservation related to park acquisition as part of the revision of the County General Plan Recreation Element.

POLICY 3 San Diego County shall coordinate with appropriate Federal, State, and local agencies to conserve cultural resources.

Action Program 3.1 Review, for possible adoption, plans of the San Diego Regional Coastal Commission which benefit conservation of significant cultural resources.

Action Program 3.2 Accept all donations of land which have high cultural value. Where appropriate, exchange donated lands of high cultural value with other jurisdictions equipped to protect such lands. Criteria will be formulated by the Environmental Development Agency to identify lands of high cultural value.

POLICY 4 The County will use the Environmental Impact Report process to conserve cultural resources. Public awareness of cultural heritage will be stressed. All information and artifactual resources recovered in this process will be stored in an appropriate institution and made available for public exhibit and scientific review.

Action Program 4.1 Include in the EIR a detailed analysis of the nature and extent of potentially adverse impacts on areas of recorded or known cultural value and areas of potential cultural resource value.

Action Program 4.2 Prepare a list of quantitative and qualitative standards for determining significant adverse impacts on cultural resources. These standards shall define cultural resource destruction, geographical areas of particular concern, and measures for the protection and conservation of our cultural heritage.

Action Program 4.3 Initiate a program to provide an incentive to report archaeological discoveries immediately.

POLICY 5 Encourage use of open space easements in the conservation of high-value cultural resources.

Footnotes

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Appendix A

Glossary

ACRE-FEET -- The quantity of water required to cover one acre to a depth of one foot; equal to 43,560 cubic feet or 325,851 gallons.

AGGREGATE -- Mineral material, such as sand, gravel, shells, or broken stone, or combination thereof, with which cement or bituminous material is mixed to form mortar or concrete. Fine aggregate may be considered as the material that will pass through a 1/4 inch screen.

AQUIFER -- Water-bearing rock that will yield groundwater in usable quantities to wells and springs.

BEDROCK -- Any solid rock underlying soil, sand, clay, etc.

CHANNEL -- That portion of a water course over which water generally flows. A channel may be defined in terms of periodic or ephemeral flows. Most local stream and river channels only have periodic flows.

COMPLETE TREATMENT -- Level of treatment required by the State Department of Health for the State Project Water from northern California before it can be used for domestic purposes, including coagulation, sedimentation, filtration and chlorination.

CONSTRUCTION QUALITY SAND -- Sand having a size gradation suitable for the production of portland cement concrete or plaster.

CRYSTALLINE ROCKS -- A general term for igneous and metamorphic rocks as opposed to sedimentary rocks.

DECOMPOSED GRANITE -- Granitic rocks partially decomposed by natural weathering process. See granitic rock.

DISCHARGE -- A measure of the volume of water passing a given point per unit of time. Commonly given in cubic feet per second (cfs).

DRAINAGE BASIN -- The land area from which water drains into a river, as for example, the Columbia River Basin is all the land area which drains into the Columbia River. Also called "catchment area," "watershed," or "river basin."

ECOSYSTEM -- The interacting unit of living and non-living elements.

ENDANGERED ANIMAL -- A species or subspecies whose prospects of survival and reproduction are in immediate jeopardy.

ENDANGERED PLANT -- A plant actively threatened with extinction and not likely to survive unless some protective measures are taken.

EPHEMERAL STREAM -- A stream or portion of a stream which flows only in direct response to precipitation.

EROSION -- The group of processes whereby earthy or rock material is loosened or dissolved and removed from any part of the earth's surface.

ESTUARY -- The wide mouth of a river or arm of the sea where the tide meets the river currents or flows and ebbs. Because of the intermittent nature of San Diego County streams, little fresh water flow occurs.

EUTROPHICATION -- The process by which a body of water ages to the point where it is about to die, usually caused by the introduction of excessive nutrients. A natural process greatly accelerated by man.

EXPANSIVE SOIL -- Any soil which swells more than three percent when prepared and tested in accordance with County procedures (from Grading Ordinance).

FISH, WILDLIFE (Federal Definition) -- The term Fish or Wildlife means any member of the animal kingdom, including without limitation, any mammal, fish, bird (including any migratory, non-migratory, or endangered bird for which protection is also afforded by treaty or other international agreement), amphibian, reptile, mollusk, crustacean, arthropod, or other invertebrate, and includes any part, product, egg, or offspring thereof, or the dead body or parts thereof.

FLOOD (100 Year) -- Statistically predictable flooding event with a magnitude (peak flood flow) such that a similar event will re-occur on a 100-year average. Actual time of occurrence is not predicted. For example two 100-year floods can occur during a single rainy season.

FLOODPLAIN -- Areas along a stream or river which are subject to flooding. Floodplains are usually relatively flat and are built up by sediments deposited when flood waters overflow the channel.

FLOODWAY -- Area subject to inundation by a 10-year flood.

GRADIENT -- Slope, particularly of a stream or land surface.

GRANITIC ROCK -- A general term used to describe coarse-grained igneous rocks which cool several miles below the ground surface.

GROUNDWATER -- Water that occurs beneath the land surface and completely fills all pore spaces of the rock material in which it occurs.

HABITAT -- The kind of environment the species occurs in, as this environment may be described in physical and chemical terms. A species may occupy a range of somewhat different habitats, or more than one distinctive kind of habitat, in different parts of its area. Within each habitat one may describe for a species its position in the space, time, and functional relationships of the natural community that habitat. The species' place in a community in relation to other species is its niche.

HARDNESS (Water) -- Amount of Calcium Carbonate or equivalent in a liquid which would occur if all of the liquid were evaporated. Hardness results in reduced (1) effectiveness of soaps and detergents, (2) fabric life, (3) life of pipes.

HEAVY METALS (As Pollutants) -- Environmental pollutants such as lead, mercury, cadmium and arsenic which are characterized as being toxic, persistent and abundant in the environment.

HOST ROCK -- Rock containing an ore deposit.

IGNEOUS ROCKS -- Rocks formed by cooling and solidification or crystallization of hot mobile material.

INFILTRATION -- The flow of water into soil or bedrock.

LAGOON -- A shallow body of water connected with the sea or a river. Local lagoons are usually separated from the sea by a sand bar.

LANDSLIDE -- 1) A relatively rapid surface movement of earth materials induced by gravity; 2) Downward and outward movement of soil, sand, gravel or rock or combination thereof and the condition resulting therefrom (from Grading Ordinance).

METAMORPHIC ROCK -- Rocks which have undergone physical or chemical changes in texture or composition, after their original formation. The processes of cementation and weathering are generally not included.

NATIVE SPECIES -- Those species which naturally occur in an area and were not introduced by man.

PEAK FLOOD FLOW -- The maximum discharge attained at a given point during a flood event.

PEGMATITE -- Rock composed of very coarse (large) crystals usually in the form of a dike or lense. Pegmatite dikes are usually light colored.

PERCOLATION -- The movement of water through soil or bedrock. This term is usually restricted to water movement above the water table.

PESTICIDES -- Chemicals used to control organisms harmful or potentially harmful to man, including herbicides, insecticides, rodenticides, etc.

RARE ANIMAL -- A species or sub-species which may become endangered if its present environment worsens.

RARE PLANT -- A plant which: 1) exists in only one or a very few restricted localities; 2) occurs in such small numbers that it is seldom seen or collected regardless of its total area; 3) exists only on a type of habitat that is likely to disappear or change for any reason.

RIPARIAN HABITAT -- Streamside vegetation.

RUNOFF -- Water which flows on the surface of the ground.

SALT WATER INTRUSION -- The phenomenon occurring when a body of salt water, because of its greater density invades a body of fresh water. It can occur either in surface or groundwater bodies.

SEDIMENTARY ROCKS -- Rocks formed by the accumulation of sediments in water or from the air.

SOIL -- 1) That earth material which has been so modified and acted upon by physical, chemical, and biological agents that it will support rooted plants, 2) All earth material of whatever origin that overlies bedrock and may include the decomposed zone of bedrock which can be excavated readily by mechanical equipment (from Grading Ordinance).

SOIL PROFILE -- Succession of soil zones or horizons that have been formed by normal soil forming process.

SPECIAL USE PERMIT -- The document which authorizes uses possessing characteristics of such unique and special form as to make impractical their being included automatically in any zone classes (from Zoning Ordinance).

SPECIES -- A living population in nature made up of organisms with about the same characteristics and which breed with each other.

THERMAL POLLUTION -- The measurable dissipation of waste heat into the environment. Coolants from power plants and industrial sources are the most common.

THREATENED -- A species likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

TOTAL DISSOLVED SOLIDS (TDS) -- All solid material in a solution whether ionized or not. Commonly expressed in parts per million (ppm).

VELOCITY (Water) -- Speed of running water.

VERTEBRATE -- Animals with backbones, including fish, amphibians, reptiles, birds and mammals.

VOLCANIC ROCKS -- The class of igneous rocks that have been poured out or ejected at or near the earth's surface.

WATERSHED -- (See Drainage Basin.)

WATER TABLE -- Upper surface at zone of saturation or an imaginary line which separates groundwater from the unsaturated soil and bedrock above.

WILDLIFE -- As used in this element, includes all wild animals found in the County, including invertebrates (without backbones) and vertebrates.

Appendix B

Habitats of State & Regional Significance

SAN DIEGO BAYS, LAGOONS, AND ESTUARIES

	San Elijo Lagoon	San Dieguito Lagoon	Los Penasquitos Estuary	Mission Bay	Tijuana River Estuary
I. California Environmental⁶⁶ Goals and Policies					
A. Significant Scientific Scenic and Educational Resource					
B. Area of Critical Concern Priority Action Required					X
C. Critical Wildlife Habitat					X
D. Proposed State Park or Expansion			X		
II. California Protected Waterways⁶⁶ Plan					
A. Extraordinary Scenic, Fishery, Wildlife and Recreation Waterway	X				
B. Waterway with Wildlife Value:					
1. Southern California Significance					
2. San Diego County Significance					
III. California Comprehensive Area⁴⁷ Plan					
High Priority Estuarine and Wetland Areas	X				
IV. San Diego County Regional Park⁶⁶ Implementation Study					
Recommended as a Regional Park	X	X		X	X

CALIFORNIA ENVIRONMENTAL RESOURCES AND HAZARDS OF CRITICAL CONCERN

AGUA TIBIA WILDERNESS AREA

ANZA-BORREGO/SANTA ROSA MOUNTAINS REGION

Complete Bighorn Sheep Habitat (endangered)
Playa

HISTORIC, ARCHAEOLOGIC AND CULTURAL RESOURCES

1. Those Indian, Hispanic and American historical areas identified as needed for the interpretation of the State's history by the State Department of Parks and Recreation.

San Diego County

Estudillo House

Guajome Ranch House

San Diego Mission Church

San Luis Rey Mission Church

San Pasqual Battlefield

Las Flores Adobe

Old Mission Dam

San Diego Presidio

Montgomery Memorial

Star of India

Cabrillo National Monument

Hubert H. Bancroft Ranch House

Oak Grove Butterfield Stage Station

Warners Ranch

Santa Margarita Ranch House

Villa Montezuma

Old Town San Diego Historic District

Hotel Del Coronado

Santa Fe Depot, San Diego

2. Archaeological Preserves (Coastline only)

Torrey Pines State Reserve
Silver Strand State Beach

WILDLIFE HABITATS

Extraordinary Fishery and Wildlife Waterways as identified by the Resources Agency as
Class - I — Premium Waterways

Warmwater Reservoirs

El Capitan Reservoir

Lower Otay Reservoir

San Vicente Reservoir

Lakes and Reservoirs

"Farm Ponds" (Statewide)

Summary Report:

⁶⁶ Environmental Goals and Policies, State of California, Sacramento, 29 pp.

Appendix C

Threatened Wildlife Species of San Diego County, 1974

California Department of Fish and Game

ENDANGERED

Birds

American peregrine falcon, Falco peregrinus anatum
Southern bald eagle, Haliaeetus leucocephalus leucocephalus
California brown pelican, Pelicanus occidentalis californicus
California least tern, Sterna albifrons browni
Light-footed clapper rail, Rallus longirostris levipes
Beldings savannah sparrow, Passerculus sandwichensis nevadensis

RARE

Birds

California black rail, Laterallus jamaicensis coturniculus
California yellow-billed cuckoo, Coccyzus americanus occidentalis

Mammals

Peninsular big-horn sheep, Ovus canadensis peninsularis

U.S. Department of the Interior

STATUS-UNDETERMINED: Suggested as being threatened with extinction but more information is needed to confirm.

Reptiles

San Diego horned lizard, Phrynosoma coronatum blainville

Birds

White-faced ibis, Plegadis chihi
Red-bellied red-shouldered hawk, Buteo lineatus elegans
American osprey, Pandion haliaetus carolinensis
Western snowy plover, Charadrius alexandrinus nivosus
Mountain plover, Eupoda montana
Northern long-billed curlew, Numenius americanus parvus
Alaskan short-billed dowitcher, Limnodromus griseus caruinus
Western burrowing owl, Speotyto cunicularia hypogaea

Mammals

Elephant seal, Mirounga angustirostris

"PERIPHERAL BIRDS": Species threatened in the U.S., at the edge of their natural range, but not necessarily in range as whole.

Elegant tern, Thalasseus elegans

"BLUE LIST SPECIES" THOUGHT TO BE DECLINING IN SAN DIEGO COUNTY*

Western Grebe
Double-crested Cormorant
Black-crowned Night Heron
White-faced Ibis
Fulvous Tree Duck
Cooper's Hawk
Red-shouldered Hawk
Marsh Hawk
Osprey

Prairie Falcon
Snowy plover
Yellow-billed Cuckoo
Burrowing Owl
Bell's Vireo
Common Yellowthroat

*From: Arbib (1973) The Blue List for 1974, American Birds 27 (6): 943-945.

Appendix D

Preliminary List, Rare, Rare & Endangered, & Possibly Extinct Vascular Plants of San Diego County

AGAVACEAE

Agave shawii Engelm.
Nolina interrata Gentry

AMARYLLIDACEAE

Bloomeria clevelandii S. Wats.
Brodiaea filifolia Wats.
Brodiaea orcuttii (Gree) Hoov.

APIACEAE

Eryngium aristulatum Jeps. var. parishii (Coult & Rose) Math. & Const.

ASPIDACEAE

Woodsia plummerae Lemmon

ASTERACEAE

Ambrosia chenopodiifolia (Benth.) Payne
A. pumila (Nutt.) Gray
Artemisia palmeri Gray.
Aster chilensis Nees.
Chaenactis parishii Gray
Coreopsis maritima (Nutt.) Hook.
Grindelia hallii Steverm.
Haplopappus junceus Greene
Hemizonia floribunda Gray
Hemizonia conjugens Keck
Machaeranthera lagunensis Keck
Machaeranthera ocuttii (Vasey & Rose) Cronq. & Keck
Senecio ganderi Beauchamp
Haplopappus propinquus Blake

BERBERIDACEAE

Berberis higginsae Munz
Berberis nevinii Gray

BORAGINACEAE

Cryptantha ganderi Jtn.

BRASSICACEAE

Cardamine gambelii Wats.
Caulanthus simulans Pays.
Caulanthus stenocarpus Pays.
Erysimum ammophilum Heller

BURSERACEAE

Bursera microphylla Gray

CACTACEAE

Bergerocactus emoryi (Engelm.) Britt. & Rose

Ferocactus viridescens (T. & G.) Britton & Rose

Opuntia parryi Engelm. var. serpentina (Engelm.) L. Benson

CAMPANULACEAE

Githopsis filicaulis Ewan

CRASSULACEAE

Dudleya attenuata (Wats.) Moran ssp. orcuttii (Rose) Moran

Dudleya multicaulis (Rose) Moran

Dudleya variegata (Wats.) Moran

Dudleya viscida (Wats.) Moran

CUPRESSACEAE

Cupressus arizonica Greene var. stephensonii (Wolf) Little

ERICACEAE

Arctostaphylos glandulosa Eastw. var. crassifolia Jeps.

Arctostaphylos otayensis Wies. & Schreib.

Arctostaphylos peninsularis Wells

Ornithostaphylos oppositifolia (Parry) Small

FABACEAE

Acacia smallii ssp. harbisonii

Astragalus deanei (rydb.) Barneby

Astragalus nevinii Gray (Reported from San Clemente Id. - possibly on the mainland)

Lathyrus splendens Kell.

Lotus argophyllus (Gray) Greene ssp. ornithopus (Greene) Raven

Lotus nuttallianus Greene

Thermopsis macrophylla H. & A. var. semota Jeps.

Trifolium polyodon Greene

FRANKENIACEAE

Frankenia palmeri Wats.

LAMIACEAE

Acanthamintha ilicifolia (Gray) Gray

Lepechinia ganderi Epl.

Pogogyne abramsii J.T. Howell

Pogogyne nudiuscula Gray

Salvia eremostachya Jeps.

Salvia munzii Epl.

Satureja chandleri (Bdg.) Druce

LILIACEAE

Calochortus dunnii Purdy

Lilium parryi Wats.

LIMNANTHACEAE

Limnanthes gracilis Howell var. parishii (Jeps.) C. Mason

LOASACEAE

Mentzelia hirsutissima Wats. var. stenophylla (Urb. & Gilg.) Jtn.

ONAGRACEAE

Clarkia delicata (Abrams) Nels. & Macbr.

OPHIOGLOSSACEAE

Ophioglossum californicum Prantl

PINACEAE

Pinus torreyana Parry ex Carr.

POACEAE

Calamagrostis densa Vasey

Orcuttia californica Vasey var. californica

Poa Atropurpurea Scribn.

Stipa diegoensis Swall.

POLEMONIACEAE

Linanthus bellus (Gray) Greene

Linanthus orcuttii (Parry & Gray) Jeps. ssp. pacificus (Mikn.) Mason

POLYGONACEAE

Chorizanthe leptoceras (Gray) Wats.

Chorizanthe orcuttiana Peery

Chorizanthe parryi Wats. var. fernandina (Wats.) Jepson

PTERIDACEAE

Cheilanthes fibrillosa Davenp. ex Underw.

Cheilanthes parishii Davenp.

RANUNCULACEAE

Delphinium hesperium Gray ssp. cuyamaca (Abrams) Lewis & Epl.

Delphinium parishii Gray ssp. Subglobosum (Wiggins) Lewis & Epl.

RHAMNACEAE

Adolphia californica Wats.

Ceanothus cyaneus Eastw.

Ceanothus verrucosus Nutt. in T. & G.

ROSACEAE

Chamaebatia australis (Bdg.) Abrams

Horkelia truncata Rydb.

SAXIFRAGACEAE

Heuchera brevistaminea Wiggins

Ribes canthariforme Wiggins

SCROPHULARIACEAE

Diplacus aridus Abrams

SELAGINELLACEAE

Selaginella cinerascens A. A. Eat.

SOLANACEAE

Solanum tenuilobatum Parish

STERCULIACEAE

Ayenia compacta Rose

Fremontodendron mexicanum Davids

ULMACEAE

Celtis reticulata Torr.

Appendix E

Sand Strategy

Demand/Supply - Metropolitan Market Area

CUBIC YARDS - CONSTRUCTION QUALITY SAND

<u>PROJECTION OF DEMAND</u>	<u>YEARLY</u>	<u>DEMAND</u>		
		<u>5 Years 1975-1980</u>	<u>10 Years 1975-1985</u>	<u>20 Years* 1975-1995</u>
1. Based on mean Annual Production Rate	1.5 million	7.5 million	15 million	30 million
2. Based on Annual Per Capita Consumption Rate.	2.4 million	(Not determined)	(Not determined)	50 million- (2.7 million cubic yards annual consumption)

**Conservation policies and programs should be based on more than twenty year period.*

POSSIBLE SUPPLY

<u>CURRENTLY UNDER PERMIT (Updated From RSRS)</u>	<u>PENDING SPECIAL USE PERMIT APPLICATIONS (January 1974)</u>	<u>POSSIBLE PRIORITY RESOURCE MANAGEMENT AREAS-PROPOSED BY CONSERVATION SUBCOMMITTEE</u>
11.6 million (February 1974)	1. Groves (P-73-137)- 3 million	1. Rancho San Diego property from Cottonwood Golf Course to Hwy.-94: 7 million*
	2. Conrock (P-74-68)- 10 million	2. Edgemoor Farm Property 5.8 million*
		3. Lakeside Community Plan 98 million.*

**At this time it is not known if any of these areas will be made available to the extraction industry.*

Appendix F

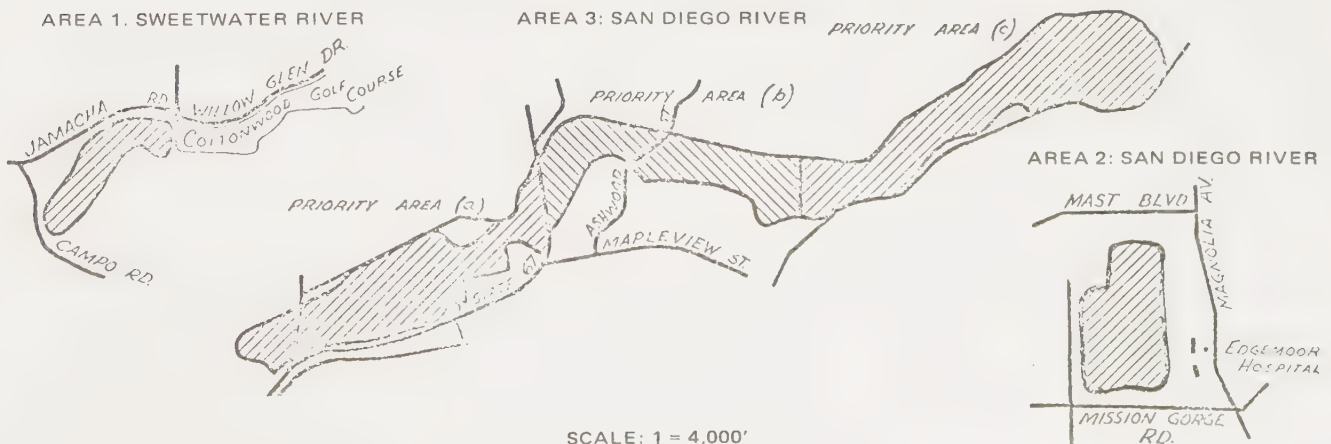
Selected Resource Management Area

Construction Quality Sand

Resource Management Areas	Acres	Assumed Depth of Excavation	Volume Millions Cy/Yds	Advantages	Other Considerations
1. Upper Sweetwater River - between westerly edge of Cottonwood Golf Course and Highway-94 (Campo Road)	115 Excavation area only	40'	7	This site is adjacent to Jamacha Road and Hwy-94. A properly planned sand extraction operation could result in desirable recreational and wildlife habitat areas.	This area, a portion of Rancho San Diego, is not owned by sand ex-tractors. Disposition of the community and property owner to using this area for sand extraction is not known.
2. Upper San Diego River - County-owned Edgemoor Farm property in community of Santee. (Other properties near this location may also be available; the larger area should be considered if hearings are held to amend the County General Plan Land Use Element).	80 Excavation area only	45'	5.8	This site is served by major transportation routes. The public would benefit from the creation of deep water lake on this site.	It is not known if the community of Santee would favor this proposal. The County Public Works Agency Real Property Department is prepared to lease this property to the sand industry. A Special Use Permit would be required to excavate the area. Larger areas near this site may also be available for sand extraction.
3. Upper San Diego River - Portions of area designated on preliminary Lakeside Community Plan as Extractive Industrial.				Much of this area has already been mined to a depth of 20 feet. The preparation of specific plans for deep dredging for specific sites should result in the rehabilitation of the unsightly condition of the area. Freeway and road access are excellent.	The community plan committee generally favors the deep dredging of portions of the area, provided there is a beneficial aesthetic result. The preparation of specific plans for portions of this area will be a very complex and time-consuming process.
This large area has been divided into three subsections. For purposes of considering the amendment of the County General Plan Land Use Element, these areas have been listed according to their priority. Subsection (a) would have the highest priority.					
Subsection (a) Westerly portion extending to Highway-67	410*	50'	33		
Subsection (b) From Highway-67 easterly to include Triway permit	384*	50'	31		
Subsection (c) From Triway permit easterly to include remainder of Community Plan Extractive Industrial area.	426*	50'	34		
	TOTAL		110.8		

*Gross Acres (Excavation area acreage not determined)

SELECTED RESOURCE MANAGEMENT AREAS



Appendix G

Unique Geological Features

UNIQUE GEOLOGIC FEATURE

Indian Mountain Leucograndodiorite

Borrego formation

Type area for 14 species and varieties of foraminifera and 24 genera, species and subspecies of ostracods.

Pliocene San Mateo formation; abundant fossil assemblage with good exposure.

San Onofre breccia.

Monterey shale.

Bonsall tonalite.

Petrified forest with logs in place. Exposures of the prebatholithic volcanics and sedimentary rocks containing leaf imprints.

Probably the County's best location of prebatholithic folded slates -- steep dips and primary structures.

Bedford Canyon formation. Well exposed stratigraphic - intrusive relationships between intermediate depth intrusive rocks (Santiago Peak Volcanics), Bedford Canyon metasediments and granitics of Southern California batholith. Structure complex and important relationships between basement complex.

The Lusardi formation consisting of a conglomerate unit, is characteristic of North San Diego County.

Lake Wohlford leucogranodiorite.

LOCALITY

Banks of San Luis Rey River, few miles southwest of Pala.

Borrego Badlands, Imperial Valley.

Along San Mateo Creek.

San Onofre Hills.

Along sea cliffs southeast of San Onofre.

Bonsall, west central San Luis Rey Quad.

Lusardi Canyon near Rancho Santa Fe, near junction with San Dieguito River.

Lusardi Canyon near Rancho Santa Fe, near junction with San Dieguito River.

Bedford Canyon; Santa Ana Mountains, Orange County.

Lusardi Canyon near Rancho Santa Fe, near junction with San Dieguito River.

Lake Wohlford, between Escondido and Lake Wohlford only.

UNIQUE GEOLOGIC FEATURE

San Marcos gabbro.

Woodson Mountain granodiorite.

Swarm of distinctly oriented inclusion in Lakewood Mountain tonalite composing outer ring dike. Core is Green Valley tonalite.

Area of prebatholithic metamorphics, especially quartzite exhibiting swirls of magnetite and biotite which may represent relic cross-bedding.

Green Valley tonalite.

Interesting relationship between granitic intrusive rock and large schlieren (streaks of dark minerals). Typical example of migmatite (hybrid gneiss).

Excellent view of Elsinore fault, canyon eroded along fault, and tributaries offset in a right lateral sense. Typical exposure of Julian schist.

Tight isoclinal folding in metasedimentary rocks.

Folded metasedimentary rock. Folded pegmatite dikes are evidence that folding occurred after dikes were formed.

Canebrake conglomerate.

Split Mountain formation.

Ocotillo conglomerate.

Localities indicating age of Santiago Peak volcanics. At (a) *Buchia piochii*, belemnoids, and ammonites were found. At (b) there are belemnoids, flame structures, flute casts and graded bedding.

LOCALITY

San Marcos Mountains, San Luis Rey Quad.

Woodson Mountain, a few miles southwest of Ramona.

East of Ramona.

Vicinity Highway 78 and San Pasqual.

Southeast San Luis Rey Quad. Green Valley between U.S. Highway 395 and Ramona.

Julian, Santa Ysabel Quadrangle.

Southeast base of Vallecito Mountain, 3 miles west of Fish Creek wash at Canebrake wash, Imperial County.

Split Mountain Gorge, south of Ocotillo, west side of Imperial Valley.

Northern Borrego Badlands near Ocotillo, Imperial County.

(a) Los Penasquitos; (b) San Dieguito, vicinity of San Dieguito River.

UNIQUE GEOLOGIC FEATURE

Excellent Eocene vertebrate fossil locality.

Excellent Eocene vertebrate fossil locality.

Exposures of fossiliferous Eocene and Pliocene strata. The Pliocene rocks are preserved by down faulting. They contain sharks teeth, whale bones and delicate Glottidia albida.

Bay Point formation.

Type area of the Rose Canyon shale.

Excellent Eocene foraminifera area.

Good exposures of green Eocene mudstones, containing large leaf imprints, petrified logs, and pelecypod molds.

Black Mountain volcanics, greenstones with interesting primary structures. Quartzose pseudomorphs of gastropods.

Exposure of San Diego formation containing whole bones and sharks teeth.

Type locality of Spatangus rarus Israelsky. Known only from type locality.

Type localities of Pecten (patinopecten) healeyi, Pecten (Pecten) stearsi, Pecten (argopecten) subdulus and Pecten (Pecten) bellus hemphilli. Found elsewhere but this is an excellent Pliocene exposure.

Del Mar formation.

Mount Soledad formation.

Mission Valley formation.

LOCALITY

Bank of San Diego River near Grantville.

Bank of San Diego River near Friars Road and Ulric Street.

Tecolote Creek.

West shore of Bay Point in Mission Bay, City of San Diego.

Rose Canyon, City of San Diego.

Old Murray Canyon Quarry, Fenton Material Company.

Black Mountain.

Black Mountain.

Vicinity of Miramar Reservoir.

Pacific Beach.

Pacific Beach.

Sea cliff and short canyon 2 km south of Del Mar railroad station.

Head of natural amphitheater 400 m west of intersection of Ardath Road and Interstate 5.

South wall of Mission Valley on west side of Highway 163 (old Highway 395) at the junction of Interstate 8.

UNIQUE GEOLOGIC FEATURE

Stadium conglomerate.

Scripps formation.

Friars formation.

Torrey sandstone.

Ardath shale.

Good exposures of Santiago Peak volcanics showing unique stratigraphic and structural relationships between many units typical of formation. Also type locality when first named Black Mountain Volcanics.

Exposure of an old "unnamed" conglomerate composed of metamorphic rocks, one of the highest surfaces of the "high terrace" cut into Stadium conglomerate, and a "contact breccia" migmatite zone.

Basal contact of Ballena gravels sloping eastward; mechanically folded border of Woodson Mountain granodiorite against narrow screen of metamorphic rocks and banded structures in gabbro on other side.

An unusual occurrence of dumortierite, sillimanite and associated minerals.

An unusual occurrence of orbicular gabbro. Apparently the orbicles are the result of banding around xenoliths in the original rock.

Prebatholithic metavolcanics can be seen especially well along Interstate 8 in the roadcuts. In selected places

LOCALITY

North wall of Mission Valley 1 km west of Murphy Canyon Road from Friars Road northwest rim of the valley.

North side of the mouth of Blacks Canyon, 1 km north of Scripps Pier, La Jolla.

32°46.0' North, 117°10.8' West, North wall of Mission Valley along Friars Road.

Torrey Pines Grade.

East side of Rose Canyon 800 m south of intersection of Ardath Road and Interstate 5.

North of Black Mountain, La Jolla Quadrangle.

Vicinity of Highway 5, west of San Vicente Reservoir.

Vicinity of Wildcat Canyon Road just east of San Vicente Creek.

Junction of Dehesa Road and Tavern Road.

Dehesa Road west of the Harbison Canyon Road intersection.

Vicinity of Interstate 8 northeast of Johnstown and south of Lake Jennings.

UNIQUE GEOLOGIC FEATURE

coarse pyroclastic and blastoporphyritic fabrics as well as original bedding are visible. Often very gneissic.

A very interesting zone of mixed rock and roof pendants in the prebatholic metavolcanics.

Contact of Woodson Mountain granodiorite and Green Valley tonalite. Notable for zone of coarse inclusions.

Good place to see roof pendant of meta-volcanics in the Green Valley tonalite.

Stonewall quartz diorite.

This feature, a major bend in the Elsinore fault, includes augen gneiss.

Dos Cabazas limestone. Tight folding in limestone, alternating bands of alcite, finely disseminated graphite and garnet. Some schist and green diopside.

Type locality of Biraster townsendi waynari Hertlein and Grant. Known only from type locality.

San Diego formation.

Excellent exposure of Bay Point formation fauna.

Excellent location of Pliocene San Diego formation fossils. Near to where Grant and Gale quarried much material for their 1931 San Diego Society of Natural History Memoir.

Cabrillo formation.

Point Loma formation.

La Posta quartz diorite.

Stratigraphic relationship between Jacumba volcanic rocks (Alverson andesite) and "Table mountain gravels" and reworked younger gravels well exposed.

LOCALITY

Vicinity of La Cresta Road east of Greenfield.

Vicinity La Cresta Road and Greenfield.

Vicinity of San Diego River west of El Capitan Reservoir.

Stonewall Peak; Cuyamaca Region, San Diego County.

Overland Stage route west of Vallecito.

Vicinity San Diego and Arizona Eastern Railroad to west of the Imperial County line.

Vicinity First Avenue and Reynard Way, north of San Diego County.

City of San Diego.

Vicinity Mexican border 1/4 mile inland.

Vicinity Mexican border 1-3/4 miles inland.

Sea cliff 250 meters east of new Point Loma Lighthouse.

Along Point Loma Peninsula (west side) at southern end.

La Posta Valley.

West of Jacumba.

Appendix H

State Guidelines for the Conservation Element

CALIFORNIA COUNCIL ON INTERGOVERNMENTAL RELATIONS

1. AUTHORITY

Government Code Section 65302(d) requires a conservation element of all city and county general plans, as follows:

A conservation element for the conservation, development, and utilization of natural resources including water and its hydraulic force, forests, soils, rivers and other waters, harbors, fisheries, wildlife, minerals, and other natural resources. That portion of the conservation element including waters shall be developed in coordination with any county-wide water agency and with all district and city water agencies which have developed, served, controlled or conserved water for any purpose for the county or city for which the plan is prepared. The conservation element may also cover:

- (a) The reclamation of land and waters.
- (b) Flood control.
- (c) Prevention and control of the pollution of streams and other waters.
- (d) Regulation of the use of land in stream channels and other areas required for the accomplishment of the conservation plan.
- (e) Prevention, control and correction of the erosion of soils, beaches and shores.
- (f) Protection of watersheds.
- (g) The location, quantity and quality of the rock, sand, and gravel resources.

2. THE SCOPE AND NATURE OF THE CONSERVATION ELEMENT

The conservation element requires an appraisal of the communities' natural resources and the development of policy for their preservation or wise utilization. Not all communities have forests or fisheries and thus not all the subject matter applies. However, all communities have water relationships and need to evaluate ongoing development which affects the supply and utilization of this resource.

A. Identification, evaluation, and analysis of the communities' natural resources:

- (1) Water resources: Source and availability of water, flood control, water pollution, control of erosion, drainage systems, protection of watersheds, weather and climate (study of water resources and consequent policies should be coordinated with all water agencies in the planning area).
- (2) Vegetative resources: Forests, agricultural areas, watershed areas, marshes; in urban areas this could encompass street trees, parks and other urban vegetation.
- (3) Harbors and Fisheries.
- (4) Wildlife, with particular concern toward endangered species.
- (5) Minerals: (Note Appendix D, suggested guide for this subsection by the Division of Mines and Geology.)
- (6) Soils and soil erosion.
- (7) Other natural resources such as air.

B. Analysis of relationships between resources; identification of areas of critical concern.

C. Determination of the development capacity of various land areas within the planning area with the aim of conserving natural resources, minimizing ecologic disruption and directing development to lands where such impact will be negligible.

D. Standards and criteria for conservation and utilization of identified resources.

E. Program for implementation including priorities.

3. **METHODOLOGY**

- A. Inventory, analysis and description (including appropriate maps) of the natural resources and natural processes within the planning area.
- B. Analysis of the relationships between conservation and development.
- C. Formulation, with the active involvement of citizen groups, of goals, objectives, policies and priorities with special attention to unique, endangered or critical resources.
- D. Formulation of criteria and standards for conservation, development and utilization of resources based on goals and objectives.

4. DEFINITION OF TERMS

Conservation is the planned management, preparation and wise utilization of natural resources. The objective of conservation is to prevent the wasteful exploitation, destruction or neglect of these resources. The local conservation planning process and program should acknowledge and detail the environmental processes relevant to the jurisdiction.

5. RELATIONSHIPS OF THE CONSERVATION ELEMENT

- A. To Other Elements: The conservation element provides a major policy input into the land use and circulation elements. Its concerns relate directly, and in fact overlap many of the concerns of the open space, seismic safety and scenic highway elements. For this reason, many communities may wish to combine these elements into a comprehensive environmental resource and management element (ERME).
- B. To the Environment: The conservation element or ERME can provide the major data and policy baseline necessary to analyze the impact of environmental proposals.

6. IMPLEMENTATION

- A. Zoning: Flood plain zoning, open space zoning.
- B. Subdivision controls, grading ordinances, hillside ordinances.
- C. Acquisition of significant natural areas.
- D. Capital improvements for water quality control.
- E. Regulations for mineral extraction, regulations to control water quality.
- F. Corrective programs where action is needed to correct or reverse conditions causing environmental damage. These may be public, private or joint public-private programs. Actions to remedy erosion through special planting, reforestation, retention basins to prevent siltation, fish ladders, special protection for endangered species are but a few examples.
- G. Education and information.

Appendix I

Water Management Agencies

CITIES

Carlsbad - flood control, sewer and water
Chula Vista - flood control and sewer
Coronado - flood control
Del Mar - flood control, sewer and water
El Cajon - flood control
Escondido - flood control, sewer and water
Imperial Beach - flood control
La Mesa - flood control
National City - flood control
Oceanside - flood control, sewer and water
San Diego - flood control, sewer and water
San Marcos - flood control
Vista - flood control

CALIFORNIA WATER DISTRICTS - Alpine Highlands, Riverview, Bellford Village, Bonsall Hts., Borrego, Orchard, Wynola.

COMMUNITY SERVICE DISTRICTS - Julian, Pauma Valley.

COUNTY WATER DISTRICTS - Borrego Springs Park, Canebrake, Leucadia, Pomerado, San Marcos, Santee, Tia Juana Valley.

IRRIGATION DISTRICTS - Helix, Lakeside, San Dieguito, Santa Fe, South Bay, Vista.

SAN DIEGO COUNTY DRAINAGE MAINTENANCE DISTRICT NO. 1

SAN DIEGO COUNTY FLOOD CONTROL DISTRICT (Zones 1-6)

MUNICIPAL WATER DISTRICTS - Buena Colorado, Carlsbad, De Luz Heights, Mootami, Olivenhain, Otay, Pauma, Poway, Questhaven, Rainbow, Ramona, Rincon del Diablo, Rio San Diego, San Luis Rey, Valley Center, Whispering Pines, Yuima.

PUBLIC UTILITY DISTRICTS - Crest, Fallbrook.

SANITATION DISTRICTS - Alpine, Buena, Cardiff, Julian, Lakeside, Lemon Grove, Montgomery, Palm City, Pine Valley, Ramona, Rancho Santa Fe, Rolando, Solana Beach, Spring Valley, Vista, Whispering Palms.

RESOURCE CONSERVATION DISTRICTS - Borrego Valley, Greater Valley Mountain Empire, Mission, Palomar, Ramona-Julian, Penasquitos, San Luis Rey, Upper San Luis Rey, Valley Center.

STATE

Department of Conservation - Division of Forestry, Department of Public Works, Department of Parks and Recreation, Department of Water Resources.

FEDERAL

U.S. Army Corps of Engineers, U.S. Department of Agriculture, Forest Service, U.S. Department of Agriculture, Soil Conservation Service, U.S. Department of Housing and Urban Development, U.S. Department of Interior, Geological Survey, U.S. Department of Interior, Bureau of Indian Affairs, U.S. Department of Interior, Bureau of Reclamation, U.S. Department of Interior, Bureau of Sport Fisheries and Wildlife, U.S. Environmental Protection Agency, U.S. Navy Marine Corps - Camp Pendleton, U.S. Navy Facilities Engineering Command, U.S. Department of State International Boundary/Water.

Appendix J

Government Code: Section 65450

ARTICLE 8. AUTHORITY FOR AND SCOPE OF SPECIFIC PLANS

Sec.

65450.1 Areas covered by specific plans (New).

65451. Contents (New).

65452. Additional contents (New).

Law Review Commentaries

Land development and the environment: Subdivision Map Act. (1974) 5 Pacific L.J. 55.

S. 65450. Preparation of plans; direction of legislative body.

Law Review Commentaries

Compatibility of economic and environmental objectives in governmental decision making. (1974) 5 Pacific L.J. 92.

Local "General Plan" in California. Alan R. Perry (1971) 9 San Diego L.Rev. 1.

I. In general

Adoption by county board of supervisors of specific plan for development of area as mountain subdivision, made subject to rezoning of property to conform to tentative subdivision maps on file, did not commit county to amend zoning ordinance or deprive county of its discretion to approve or disapprove application for zone change submitted by developer which was advised that requested zone change involved greater degree of responsibility over project than did the specific plan. *People v. Kern County* (1974) 115 Cal.Rptr. 67, 39 C.A.3d 830.

S. 65450.1 Areas covered by specific plans

A specific plan need not apply to the entire area covered by the general plan. The legislative body or the planning agency may designate areas within a city or a county for which the development of a specific plan will be necessary or convenient to the implementation of the general plan. The planning agency may, or if so directed by the legislative body shall, prepare specific plans for such areas and recommend such plans to the legislative body for adoption. (Added by Stats. 1971, c. 1446, p. 2856, S 8.)

Law Review Commentaries

Birth control for premature subdivisions -- a legislative pill. (1972) 12 Santa Clara L. 523.

S. 65451. Contents

Such specific plans shall include all detailed regulations, conditions, programs and proposed legislation which shall be necessary or convenient for the systematic implementation of each element of the general plan listed in Section 65302, including, but not limited to, regulations, conditions, programs and proposed legislation in regard to the following:

- a. The location of housing, business, industry, open space, agriculture, recreation facilities, educational facilities, churches and related religious facilities, public buildings and grounds, solid and liquid waste disposal facilities, together with regulations establishing height, bulk and setback limits for such buildings and facilities, including the location of areas, such as flood plains or excessively steep or unstable terrain, where no building will be permitted in the absence of adequate precautionary measures being taken to reduce the level of risk to that comparable with adjoining and surrounding areas.
 - b. The location and extent of existing or proposed streets and roads, their names or numbers, the tentative proposed widths with reference to prospective standards for their construction and maintenance, and the location and standards of construction, maintenance and use of all other transportation facilities, whether public or private.
 - c. Standards for population density and building density, including lot size, permissible types of construction, and provisions for water supply, sewage disposal, storm water drainage and the disposal of solid waste.
 - d. Standards for the conservation, development, and utilization of natural resources, including underground and surface waters, forests, vegetation and soils, rivers, creeks, and streams, and fish and wildlife resources. Such standards shall include, where applicable, procedures for flood control, for prevention and control of pollution of rivers, streams, creeks and other waters, regulation of land use in stream channels and other areas which may have a significant effect on fish, wildlife and other natural resources of the area, the prevention, control and correction of soil erosion caused by subdivision roads or any other sources, and the protection of watershed areas.
 - e. The implementation of all applicable provisions of the open-space element as provided in Article 10.5 (commencing with Section 65560) of this chapter.
 - f. Such other measures as may be necessary or convenient to insure the execution of the general plan.
- (Added by Stats. 1971, c. 1446, p. 2857, S 10.)

Former section 65451 was amended by Stats. 1970, c. 1590, p. 3313, S 7, and was repealed by Stats. 1971, c. 1446, p. 2856, S 9.

Derivation: Former section 65451, added by Stats. 1965, c. 1880, p. 4342, S 5, amended by Stats. 1970, c. 1590, p. 3313, S 7.

Forms: See West's California Code Forms, Government.

Law Review Commentaries

Growth control in California. Thomas P. Clark, Jr. and Roger A. Grable (1974) 5 Pacific L.J. 570.

1. In general

Provisions of the Subdivision Map Act and S. 11551 support the authority of local governing bodies to require that all roads created pursuant to a subdivision or land project determine lot boundary lines. 56 Ops. Atty. Gen. 105, 2-27-73.

S. 65452. Additional contents

Such specific plans may also include all detailed regulations, conditions, programs, and proposed legislation which may be necessary or convenient for the systematic implementation of any general plan element as provided in Section 65303. (Added by Stats. 1971, c. 1446, p. 2857, S 11).

ARTICLE 9. PROCEDURE FOR ADOPTION OF SPECIFIC PLANS AND REGULATIONS

Sec.

65507. Establishment of specific plan or amendment thereto (New).

S. 65500. Hearing; notice

1. In general

Evidence that plaintiffs failed to pursue any remedy from alleged improper action of city council in failing to refer rezoning back to planning commission until filing of action two years after adoption of the ordinance, during which time intervenors purchased property and launched its development, supported finding that plaintiffs were guilty of laches and could not complain of the failure of the city council to refer the plan back. Millbrae Ass'n for Residential Survival v. City of Millbrae (1968) 69 Cal. Rptr. 251, 262 C.A. 2d 222.

2. Necessity of hearing

Adoption of zoning requires public hearings with public notice and initiatives in zoning field are invalid. People's Lobby, Inc. v. Board of Sup'rs of Santa Cruz County (1973) 106 Cal. Rptr. 666, 30 C.A. 3d 869.

6. Report of commission

Proposed initiative ordinance restricting use of seashore property was invalid for violation of due process clause and for failure to follow statutory procedure for adoption of zoning ordinance. People's Lobby, Inc. v. Board of Sup'rs of Santa Cruz County (1973) 106 Cal. Rptr. 666, 30 C.A. 3d 869.

S. 65503. Action by legislative body; hearing; notice

I. In general

Where planning commission had approved rezoning of eight separately designed sections and submitted them to city council but council rezoned only one of the sections, ordinance rezoning one section was merely an ordinance of lesser scope than that which council might have enacted and failure to rezone other seven sections did not amount to a change in the commission's recommendations and referral back to planning commission was not necessary. *Millbrae Ass'n for Residential Survival v. City of Millbrae* (1968) 69 Cal. Rptr. 251, 262 C.A. 2d 222.

S. 65504. Reference of proposed changes; failure to make reference

I. In general

Where planning commission had approved rezoning of eight separately designed sections and submitted them to city council but council rezoned only one of the sections, ordinance rezoning one section was merely an ordinance of lesser scope than that which council might have enacted and failure to rezone other seven sections did not amount to a change in the commission's recommendations and referral back to planning commission was not necessary. *Millbrae Ass'n for Residential Survival v. City of Millbrae* (1968) 69 Cal. Rptr. 251, 262 C.A. 2d 222.

Evidence that plaintiffs failed to pursue any remedy from alleged improper action of city council in failing to refer rezoning back to planning commission until filing of action two years after adoption of the ordinance, during which time intervenors purchased property and launched its development, supported finding that plaintiffs were guilty of laches and could not complain of the failure of the city council to refer the plan back. *Id.*

S. 65506. Application to ordinances of legislative bodies

Nothing in this * * * article applies to the adoption or amendment of any ordinance by legislative body, whether or not it may relate to the subjects mentioned in Article 8 of this chapter, except ordinances expressly adopting or amending a specific plan initiated pursuant to this chapter.

(Amended by Stats. 1970, c. 1590, p. 3313, S 8.)

S. 65507. Establishment of specific plan or amendment thereto

When it deems it to be for the public interest, the legislative body may initiate and adopt an ordinance or resolution establishing a specific plan or an amendment thereto. The legislative body shall first refer such proposal to establish such specific plan or amendment thereto to the planning commission for a report. Before making a report, the planning commission shall hold at least one public hearing. The planning commission shall report within 40 days after the reference, or within such longer period as may be designated by the legislative body. Before adopting the proposed plan or amendment the legislative body shall hold at least one public hearing. Notice of the time and place of hearings held pursuant to this section shall be given in the time and manner provided for

the giving of notice of hearings by the planning commission as specified in Section 65500.

(Added by Stats. 1970, c. 677, p. 1307, S 1.)

ARTICLE 10. ADMINISTRATION OF SPECIFIC PLANS AND REGULATIONS

Sec.

65553. Open space lands; reference of proposal to planning agency for report; report to legislature (New).

S. 65553. Open space lands; reference of proposal to planning agency for report; report to legislature

No street shall be improved, no sewers or connections or other improvements shall be laid or public building or works including school buildings constructed within any territory for which the legislative body has adopted a specific plan regulating the use of open-space land until the matter has been referred to the planning agency for a report as to conformity with such specific plan, a copy of the report has been filed with the legislative body, and a finding made by the legislative body that the proposed improvement, connection or construction is in conformity with the specific plan. Such report shall be submitted to the legislative body within forty (40) days after the matter was referred to the planning agency. The requirements of this section shall not apply in the case of a street which was accepted, opened, or had otherwise received the legal status of a public street prior to the adoption of the specific plan.

(Added by Stats. 1970, c. 1590, p. 3314, S 14.)

Underline indicates changes or additions by amendment

Asterisks * * * indicate deletions by amendment

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